

FLIGHT

&
The AIRCRAFT
ENGINEER.

First Aero Weekly in the World.

Founder and Editor: STANLEY SPOONER.

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Index and Title Page for Vol. IX.

The 8-page Index for Vol. IX of "FLIGHT" (January to December, 1917) is now ready, and can be obtained from the Publishers, 36, Great Queen Street, Kingsway, W.C. 1. Price 8d. per copy, post free.

EDITORIAL COMMENT.

"Newspapers are an essential part of our war organisation."—
(Sir Auckland Geddes, Minister of National Service.)



FROM an authoritative source it is learnt that the position on the Western Front is that the Allies have a slight superiority in rifles, a fair margin over the enemy in guns, and are greatly superior in the air. So far as concerns the first, the balance will, there is little doubt, be turned slightly against us as soon as the Germans have concluded the withdrawal of the divisions now doing nothing in the East and have conveyed them to the battle-fronts of the West. That means we shall be outnumbered to some small extent in the early fighting of 1918, though there is every probability that the enemy's advantage will only be a transient one, lasting until

Aerial
Supremacy
and
Production.

sufficient American troops to redress the balance have been brought into line. As to guns, there is very little need for disquiet. With all the manufacturing resources of the Allies, and their ready access to the world's raw materials, the superiority of munitionment certainly ought to be maintained, though at the same time we shall have to put our backs into the task of keeping ahead of the Germans. It is only necessary to mention, in order that too much importance may not be attached to Germany's alleged shortage of material, that she has already imported since the beginning of the year enough Swedish iron ore to fill her requirements for 1918.

As to the supremacy of the air, it is good to know that at last we have attained a position which justifies the military authorities in the pronouncement that we are really definitely superior to the enemy. We have been long enough getting there, and the task has been a difficult one—but it has been surmounted successfully, and we ought before long to begin to see the fruits of our efforts. But there is a warning which it is necessary to utter. The simple fact that we have passed the Germans in our rate of construction must not lead us into a mood of false security. Now that we are on top, we must strain every nerve to ensure that we stay there. We know the Germans are taking full advantage of every facility they have for the production of aircraft. They are doing very well, too, and at the best it will be some months more before we have attained to the absolute supremacy in the air which is the goal on which we have set our eyes—and that even with the assistance of America. We do not know the exact formula of supremacy set by the authorities, but whether it is a superiority of two or three or four machines to the enemy's one does not affect the argument that what we have to strive for now is, not to keep up our production figures to what they are now, but to increase them and to increase them yet again. As we said in writing on this same subject in a recent issue of "FLIGHT," there is only one ideal to which we can work, and that is the absolute maximum of possible production. Nothing less than that will do, if we are, as so many people think—and with reason—figuratively to win or lose the war in the air.

Every week that passes strengthens our conviction that it is in the air that we shall have to seek the ultimate decision. It really appears that modern war on land has reached such a stage of perfection in defence that, given anything like equality in numbers and in

morale, the only result can be a virtual stalemate, with the ultimate consequence that we must look for our decisions to the operation of factors which have nothing to do with the actual fighting—as, for example such internal upheavals as that in Russia—unless we can find a way *over* rather than *through* the powerful systems of defence which stretch back for miles behind the front lines. There is such a way over—by the use of aircraft. But the necessary material has to be mobilised in large enough masses to ensure such a definite superiority at all points that we can, by constant attacks on the enemy's communications and stores behind his apparently impregnable lines—impregnable, that is, to the more orthodox attack by land—that he will be compelled to withdraw his troops because of sheer inability to feed and supply them, even if constant attack from the air and the uncertainty of supply has not told so heavily on his *morale* that his troops take to wholesale surrender before the withdrawal can be made. It is in this way that we believe the war will be won. If we are right—and there are many signs that we are—it follows that it is not nearly enough for us to be merely superior in the air. In order to consummate our ideal we must be overwhelmingly so, and we can only be that by speeding up production again and yet again.

The Shipbuilding Impasse.

We do not feel called upon to apologise to our readers for referring to a subject so apparently far removed as shipbuilding from the special interests with which this journal is associated. These are not normal times, and we take it as a matter of duty to discuss all and every subject which has a direct bearing on the difficulties in which the country and the Empire are involved. More particularly is this so when those difficulties arise in whole or in part from the growth of bureaucratic tendencies and methods against which the country has now, and will have for a long time to come, to jealously guard.

From time to time we have seen how these methods have eaten like a cancer into efficiency, but no worse case has ever been presented than that in which the vital industry of shipbuilding finds itself to-day. There is no need for us to quote figures relating to the depletion of the world's tonnage by the enemy's U-boat campaign. All that we need concern ourselves with at the moment is that we are losing ships much faster than we can replace them under the present system of Government control of shipbuilding, and that it is quite obvious we cannot indefinitely stand the strain of sinkings without replacement. The plain fact is that unless some method can be contrived of enabling new construction to balance losses we shall be starved into making an ignominious peace.

The blame for the present unsatisfactory returns of shipbuilding has been very largely assigned to the workers on the Clyde and the East Coast, who, it has been alleged, are not putting their backs into the work. In support of this, the figures for January have been quoted as telling proof of the assertion. The First Lord of the Admiralty, in the House of Commons last week, made the statement that he was driven to the conclusion that "even at this late date, the situation is not fully realised." This has called forth a statement from the Shipbuilding Employers' Federation and the shipyard trade unions, which says:—

"The First Lord's statement in the House of Commons on Tuesday night, so far as it reflects upon employers and workmen engaged on shipbuilding, has caused much feeling in shipbuilding districts. Representatives of the trades and the employers have met to-day and decided that the First Lord's remarks call for a joint reply. This joint reply will be made next week, and in the interests of the nation and all concerned it would be well to suspend judgment till then. Meantime, it is pointed out that the fact that a deputation of the shipbuilding employers and shipyard trade unions waited upon the Prime Minister in November last and made joint proposals to the Government, is a clear indication that they fully realised the gravity of the shipbuilding position. The desire of the whole industry was, and is, to strengthen the First Lord's hands in the stupendous task before him, and if nothing material has, as yet, resulted from the interview with the Prime Minister the reason must be looked for from within the Government itself."

Sir William Raeburn, President of the Chamber of Shipping, at the annual meeting of that body, said:—

"As to shipbuilding, the *Times* said that there was a mystery about the decrease in production. He denied that there was any mystery. The two elements responsible were the Government and the workers. It was quite unfair for the First Lord of the Admiralty to have attacked builders for the reduction. The fact was that the spirit of shipbuilders had been almost broken by the interference of the Government during the last two years. When Mr. Barnes made his serious statement on the question of shipbuilding, it was a great pity he did not tell the whole truth and nothing but the truth. It was high time the country knew the facts, and when it did the facts would open the eyes of the country. The position was serious, but people must not run away with the idea that the January production was any indication of what was being done to meet the situation. The Government would be well advised if they now took the nation into their confidence and gave the tonnage of the sinkings, and the new tonnage added from month to month. A material improvement in the near future might be looked for, but unless the workmen put their heart into their work, and did very much more than they had been doing, the position was bound to remain serious. The truth of the matter was that the men had too much money, and through causes which they had all foreseen for years they had now become the masters of their employers and the masters of the Government. They had been told about the U-boat menace being entirely overcome by August next, but he had a strong belief that we should never entirely overcome it."

The gravamen of Sir William's statement lies in the allegation that the spirit of the shipbuilders has been broken by Government interference, and in support of the accusation there is, unfortunately, ample evidence forthcoming from shipbuilding sources to vouch for its truth. Mr. A. M. Carlisle, the designer of the "Titanic" and "Olympic" among other great ships, who certainly knows of what he speaks when he deals with shipbuilding, says in a letter to the *Times*, that it is his belief, and that of thousands of practical men, that unless the Government, even at this eleventh hour, remove their control of shipbuilding and other great industries, they will kill what in the past has been the success of all great achievements—individuality and personal enterprise.

Let us regard for a moment the way the Government has set to work to handle this vital problem of shipbuilding. Nearly a year ago the Prime Minister turned his attention to the question and appointed Sir Eric Geddes—a railway manager, with no knowledge of shipbuilding—to control the output of naval and mercantile tonnage. General Collard, another railway official and also totally ignorant of the highly technical industry of shipbuilding, was appointed to speed up output. In due time Sir Eric Geddes went to the Admiralty, and was succeeded by Sir Alan Anderson, his cousin, a director of a ship-owning firm, but, whatever his knowledge of shipping, with no training in shipbuilding. The result was the

creation of great administrative activity, but practically no expansion of shipbuilding output. Instead, friction has arisen at every point between the Government and the private shipbuilders. We have no intention of rushing in with suggestions in a matter in which we are as ignorant of the technicalities as the people who have been put in charge of this vital department of our war effort. It is enough to state the bare facts and allow our readers to draw their own conclusions.

As for the broader issue of bureaucratic control of industry, there is no room for two opinions. A certain measure of State control is undoubtedly necessary during the war, and we cannot, therefore logically argue against it. But the fact is patent to all who have given the matter more than a passing thought that "control" has gone far beyond the necessities. That, we are afraid, cannot be helped now. It is too late now to begin to reconstruct all our methods, but once we have done with the war

the country must see to it that the stifling incubus of Government "control" is removed and our industries given a chance to reconstruct and expand under the influence of that personal initiative and enterprise which alone can achieve success.

• • •

**Rank
in the
Air Force.**

It is with the deepset concern that we have read the Air Force Memorandum dealing with the rank and pay of the *personnel* of the Force. In the case of the officers all the old ranks of Wing Commander, Squadron and Flight Commander, and so forth, are to disappear, and in future these officers are to be known by the respective Army titles of Lieut.-Colonel, Major, Captain, &c. Without the smallest hesitation we say that this is a capital blunder, for the reason that it is absolutely destructive of the *esprit de corps* which has been built up around the old descriptions of rank. We are aware that in the



WAR LOAN WEEK IN TRAFALGAR SQUARE.—The Italian S.I.A. biplane, in which Capt. the Marquis Laureati made his Turin-London non-stop flight, with a nearer view of its engine and the extra petrol tank.

case of the officers of the R.F.C. these were described in the Army List by their Army rank, but in nine cases out of ten the latter were never used within the Corps, because the individual far preferred to be known in his alternative rank of Squadron or Flight-Commander or whatever rank he might be entitled to carry. By a stroke of the pen all this has been washed out, and the officers of the Air Force are to be invested with titles which simply have no meaning either within the force or outside it. That is to say, they are in no sense descriptive of the rank or command held by the individual officer, and for all they signify to the man-in-the-street—who certainly counts for something in his appreciation of Service matters—the flying services might just as well have been merged in the Army and have been placed under the control of the War Office. That is bad in itself, for the reason that as the Air Force grows and the country is asked to provide money for its services, the better the country understands its working the easier it will be to secure the necessary support for policy. To that end it is, we submit, absolutely essential that the Air Force should be as separate as it can possibly be made from both the Army and Navy, so that there can be no confusion in the public mind.

That, however, is quite a subsidiary issue for the moment. Indeed, we are prepared to admit that it is even possibly a matter on which there is room for two opinions. But so far as the question of *esprit de corps* is concerned, we regard that as being absolutely vital to the well-being of the Force. We have not discussed the matter at any length with active officers of the Force, because the Memorandum has but just been issued, and, therefore, we are writing at large for the moment. But we venture to assert that if a vote of the officers concerned were taken the volume of opinion would be found overwhelmingly

against the new ranks and in favour of the retention of the old. We know that to take such a vote would not be in accordance with Service methods and traditions, nor do we ask for a proceeding which is held to be to the "perjudice of good order and discipline," but we do appeal to the Air Minister to take the sense of responsible officers and to abide by their recommendations. Knowing what the men in the Service think about it, we can only imagine that this Memorandum has been issued without consulting those who are most affected—particularly the officers of the Naval wing of the Force. It is not too late even yet.

Good Work at the Front.

The First Brigade of the R.F.C. seems to have again specially distinguished itself in the air fighting on the Western front. In a recent Order, it is conveyed that the Commander-in-Chief has requested Army Commander to convey to Commander and all ranks of the Brigade his best congratulations on their splendid success in bringing down eighteen enemy aeroplanes in one day, and to state that he is very glad to hear that all our aeroplanes returned safely.

This is excellent work indeed! It is a certain indication that our gallant airmen at the front are more than a match for the best the Hun can put into the air, and an earnest that things are not going at all badly for us in the fight for the mastery of the air. In another article in these columns we have dwelt upon the superiority we have attained in the numbers of machines we can put into the air compared with those at the disposal of the enemy. The fact that we are thus superior would be good hearing if it stood by itself, but taken in conjunction with the fact that our men are so unquestionably "on top" of the individual Hun seems clearly to indicate that the way to victory in the air is indeed opening out at last.

Lieutenants Scholtz and Wookey Released.

THE following announcement was made by the Prisoners of War Department on March 11th:—

"It was recently announced in the German Press that the British airmen, Lieutenants Scholtz and Wookey, had been sentenced to a long term of imprisonment in Germany on a charge of having dropped pamphlets over the German lines. The German Government were thereupon informed that not only was such a sentence without any justification in international law, but that His Majesty's Government were in possession of a mass of evidence of similar activities on the part of German airmen, and that, if the British officers in question were not set at liberty, due measures of reprisals would be taken against German officers in British hands.

"This notification was handed to the German Government on February 12th. Under the agreement recently concluded at The Hague a month was due to elapse before the initiation of the British measures of reprisals.

"The Prisoners of War Department has to-day been informed that Lieutenants Scholtz and Wookey will be released and returned to their camps."

The intimation received through the Dutch Government states that the two officers have been returned to their camps and have been pardoned.

The British Government has replied, Reuter is informed, that it is not satisfied with the view that the Officers can be pardoned as it is not admitted that any offence was committed.

British Air Superiority and Reprisals.

In his speech introducing the vote of credit for six hundred millions in the House of Commons on March 7th, Mr. Bonar Law said: "I would like to remind the Committee of something they are not likely to forget—that the value you can get out of guns depends largely on the Air Forces of the two sides. It is an undoubted fact that from the point of view of fighting efficiency we have, I will not say supremacy, because supremacy implies that the other people cannot show themselves, but we have an overwhelming superiority in our Air Service, which will go far to neutralise any evil that may come from the larger number of guns. In this connection I should like to say, what I believe every member of the Committee knows, that the superiority which, after so long a fight, we have still been able to maintain in the air is not due so much, perhaps hardly at all, to superiority of organisation or the supply of machines; it is due to the quality of the men.

"In speaking of the Air Service I did intend to say this—by way of parenthesis perhaps I may do it now: The Committee knows that this Government, as well as the people of this country, were very reluctant to indulge in any air raids on German towns. We put it off as long as we could, but, as was stated in this House a good many months ago—and I remember, also, stating it myself at a meeting at the

Albert Hall—just as in the case of poisonous gas, so in the case of air raids, we would never have begun them, but, having begun them, we would take care that, if they must be part of the war, we should not come worst out of them. They have begun. The Germans, unlike ourselves, do not publish results, but there was a very interesting discussion in the House of Representatives of Bavaria the other day. I will read part of the report which came to the Government, and the House will realise that these raids have not been ineffective. This is what it says:

"In the House of Representatives there was a Social Democratic interpellation concerning raid damage. The interpellation asks, Is the Government aware that the population of Bavaria has ever increasing loss from air raids, and what does the Government propose to do to indemnify those who suffer by these raids? Later on a Liberal member requested the Government to use their good offices that an Imperial law should be passed whereby State compensation should be guaranteed for damage by aircraft inflicted on persons or property. The House resolved upon open discussion of this interpellation, and the Minister stated repeatedly that the Government will do its best to relieve the suffering caused by the air raids."

"I think this shows that what we have done in that direction has not been ineffective."

THE FOKKER TRIPLANE.

[The collection of captured enemy aeroplanes at the Enemy Aircraft View Rooms is constantly increasing, and every week brings something interesting of which we should like to inform our readers. It is not, however, possible to do justice to each new arrival before the next one follows, so rapidly do the numbers increase. As we have only available in our columns a limited amount of space which can be devoted to this particular subject, we are faced with the problem of either curtailing the matter of the articles or else perforce defer much that is of interest until space permits publication. A case in point is the Fokker triplane which has just arrived at the View Rooms. We are naturally anxious to place particulars of this interesting machine before our readers as quickly as possible, but at the same time, having far from finished our detailed description of the Albatros Fighter, we should like to complete this before turning our attention to other machines, however interesting. We, therefore, decided this week to somewhat curtail the description of the Albatros, in order to be able to give just a brief outline of the features of the Fokker triplane. In so doing we regret having had to reduce the instalment dealing with the Albatros to less than it would otherwise have been, but trust that we have made up for this by being the first journal in the world, we believe, to publish illustrations of the Fokker triplane. To the authorities who have courteously given us every facility for dealing with this interesting machine, our readers no less than we ourselves are indebted for the following information.—ED.]

It has been one of the features of the development of German aeroplanes during the war that, up till comparatively recently their performance has been obtained by a constant increase in engine power rather than by highly efficient aerodynamical design. Such refinements as stream-lined cables, and "spinners" over the propeller boss were not in the past a characteristic feature of German aeroplanes. As, however, the demands for better and still better performance grew, the Germans were obliged to pay more attention to such details, and such machines as the Albatros chaser, with its stream-line semi-monocoque body, was one of the manifestations of this attempt at increased efficiency. The Fokker triplane marks a further step in the battle against that enemy of efficiency, Kx, once expressed by Mr. A. E. Berriman, we believe, as the price paid for the lift. In the Fokker triplane this price has been reduced to what would appear to be an irreducible minimum. So far has the designer gone in his reduction of head resistance as to eliminate all trace of external lift bracing. The Fokker triplane can, therefore, be said to be of the "wireless" type; more truly so than is the case with, for instance, the Curtiss "wireless" in which, although no wires are employed, the struts sloping out from the landing wheels to the lower plane perform the function of lift wires.

No such struts are fitted on the Fokker triplane, the internal construction of the wings being designed to provide all the strength without any external aid of any kind. The interplane struts, which are really ties rather than struts, might conceivably have been omitted altogether, and so far as one is able to judge, their only function is to help to distribute the load more evenly between the three wings. It is well known that in a biplane the upper wing carries about four-sevenths of the total load (when the wings are of equal section, span, and chord) and the lower wing about three-sevenths. In a triplane much the same distribution is found, with the exception that the middle and lower wing each take a share (not equal) of the three-sevenths of the total load.

In the Fokker triplane the upper wing is of larger span than the middle wing, which in turn is of slightly greater span than the lower wing. In consequence, as the three wings appear to be all of the same section, the upper wing must carry more than four-sevenths of the total load. In order to provide a better load distribution, the middle and lower wings are made to carry their share of the load on the top plane by connecting them to this *via* thin high fineness ratio struts, which are in reality ties as they are working in tension. This explains why the struts are so ex-

tremely thin (about $\frac{1}{8}$ in.) and the moment of inertia of the strut section would be so small that the struts would buckle under a very small load if subject to compression.

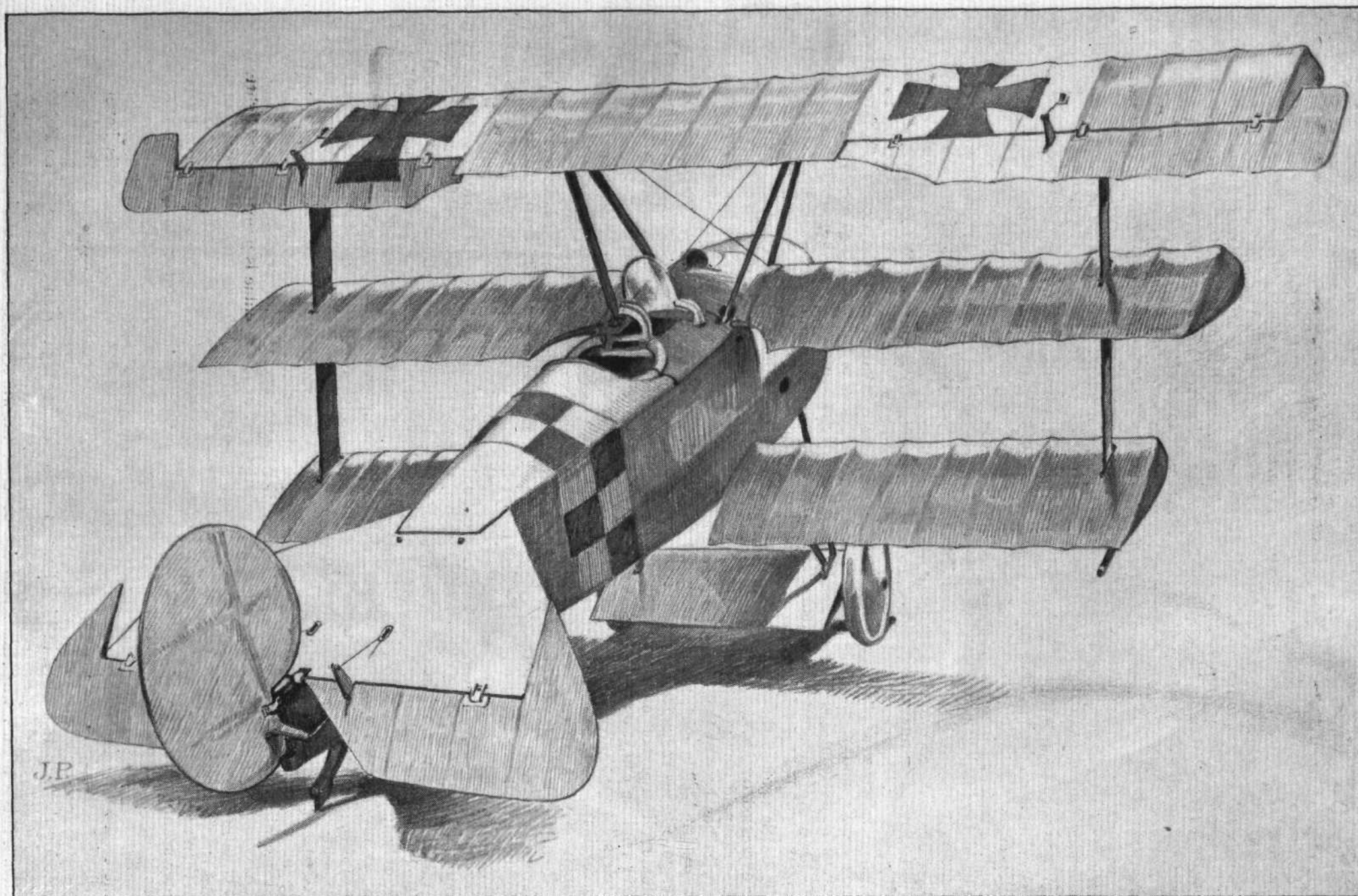
The fact that no lift bracing is employed naturally necessitates wing spars of considerable depth if the spar weight is to be kept reasonable low, and in the Fokker triplane this has been attained by making the wing section very thick in proportion to the chord. As a matter of fact the section is a far greater percentage of the chord than any we have ever seen on a modern aeroplane. For the time being we cannot go into details, this must be postponed until we do a full description of the Fokker, but roughly we should say that the maximum camber is in the neighbourhood of one-eighth of the chord.

The two wing spars are placed very close together, and are enclosed in a box of three-ply wood. The function of this box is two-fold, it increases the strength of the spars for taking bending and at the same time acts as internal drift bracing. At the moment of writing we are not able to say whether or not any other drift bracing is employed, but we are inclined to think that this function is performed solely by the ply-wood box.

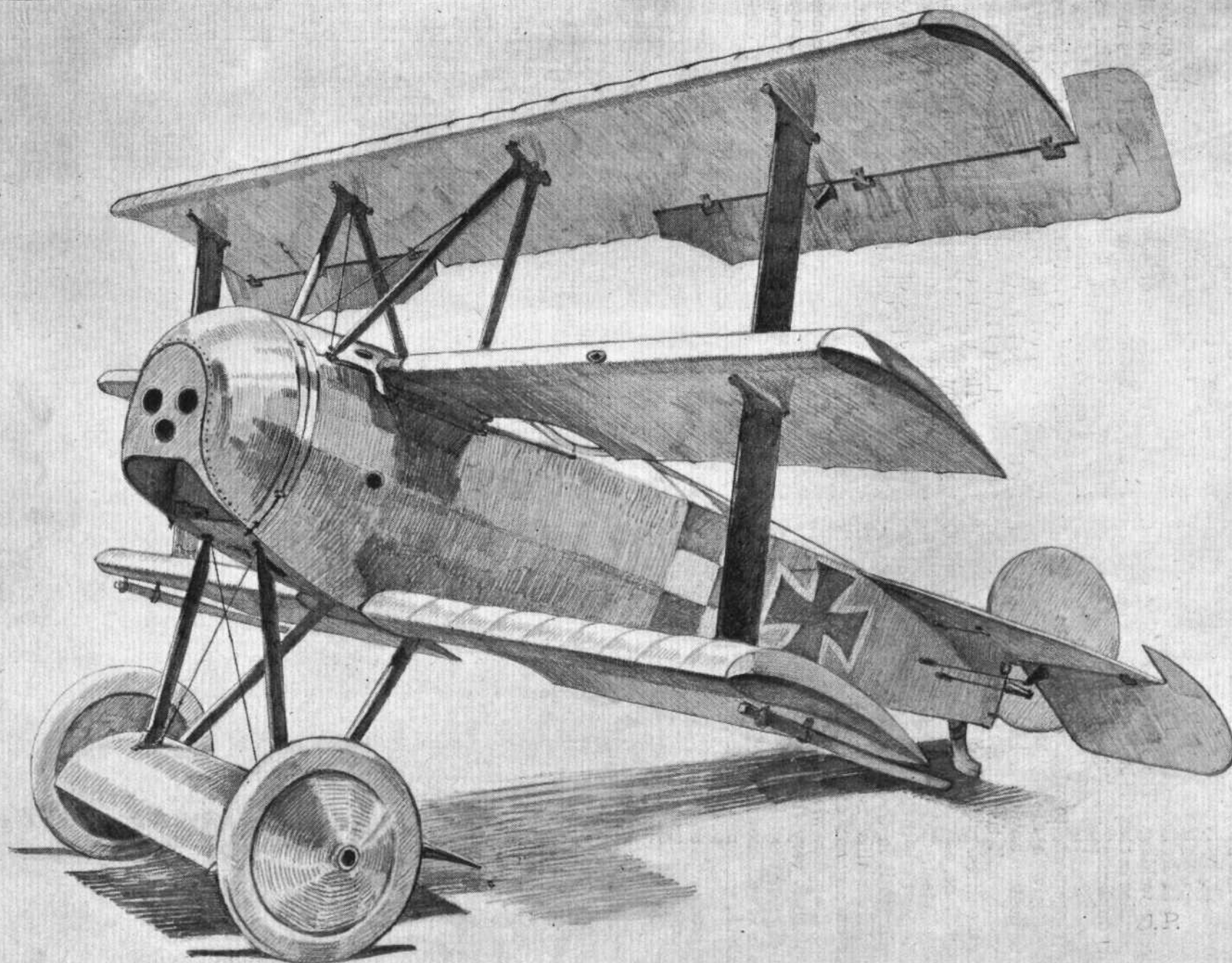
The upper wing, which is in one piece, runs right across, and is supported on struts sloping outwards as in the Sopwiths. The other two wings each have a centre section rigidly attached to the body, the middle one resting on the top *longerons* and the bottom one running *underneath* the lower longerons, an aluminium shield streamlining the normal surface presented by the deep flat sides of this spar.

From the illustrations it will be seen that the gap is unusually small, being very considerably less than the chord. The inefficiency thus caused is partly made up for by staggering the wings but even so one would imagine the machine to be somewhat inefficient. The interference owing to too close spacing of the wings chiefly affects the lift co-efficient, and as the machine is probably very lightly loaded—compared with the majority of German machines—it is possible that the landing speed is not excessive.

Strictly speaking the Fokker is not a triplane. It would be more correct to term it a three-and-a-half plane, as the wheel axle is enclosed in a casing of ply-wood which has a section somewhat similar to that of the wings. Experiments have shown that floats of such a section as to have a deeply cambered top surface may be made to support their own weight during flight. In the case of the Fokker triplane it appears probable that this ply-wood casing around the wheel axle carries a not inconsiderable load during



THREE-QUARTER REAR VIEW OF THE FOKKER TRIPLANE.—This illustration gives a good idea of the general arrangement of this interesting machine. Note the small ply-wood plane enclosing the wheel axle.



THREE-QUARTER FRONT VIEW OF THE ' FOKKER TRIPLANE.—The thickness of the wings can be imagined from an inspection of this drawing. The pin-jointed struts are really ties rather than struts as they are working in tension.

flight. Its section appears capable of supporting a fair load per sq. ft. of area, and its inefficiency due to low aspect ratio is probably less than one would expect in a plane of an aspect ratio of about two, on account of the proximity of the covered-in wheels to the tips, the effect of which must be to stop end losses to a considerable extent.

As regards the body of the Fokker triplane this is constructionally very similar to that of the Fokker monoplanes. *Longerons* as well as struts and cross members are in the form of steel tubes, and are joined together by welding. The internal bracing of the body is peculiar in that the bracing wires are in appearance in duplicate, although they are not so in effect.

The arrangement, to which we shall revert again when dealing with the Fokker in detail, does not appear to possess any other advantage than that in each bay only half the number of loops have to be made in the wires.

The tail plane, as well as the elevators and rudder, is made of steel, and is of a symmetrical section, much thinner than that of the Albatros, but otherwise similar to it in that no external bracing is employed. While this is quite satisfactory in the Albatros on account of the thick tail plane spars employed, it appears wholly inadequate in the Fokker, as the plane is very thin, and since, moreover, the trailing edge of the tail plane is a steel tube, which section, as is well known, is not a good one for a laterally loaded beam, owing to the fact that much of the

material is massed around close to the neutral axis where it is not taking very much of the load.

As exhibited at the Enemy Aircraft View Rooms the Fokker is not complete inasmuch as the engine has been removed. The cowling shows without a doubt that the engine must have been a rotary, and the mounting is of the type usually employed for rotary engines, *i.e.*, a main engine plate bolted to the nose of the body, and a pyramid of steel tubes, supporting at its apex the rear end of the crank-shaft. A sheet of aluminium is placed immediately in front of the engine plate. The manner of cowlings in the engine will be apparent from our illustrations, and does not present anything of particular interest, following as it does conventional practice.

Although they are not in place in the machine as exhibited, it is evident from the aluminium casings for the cartridge belts that two synchronised machine guns have been fitted, one on each side above the fuselage. The usual triggers, operating the guns through Bowden cables, are mounted on the control lever, which latter is of the usual type.

Painted on the side of the fuselage are the following data relating to the weight of the machine: Weight empty, 376 kg., useful load, 195 kg., total weight, 571 kg. (about 1,250 lb.).

With these brief particulars we must leave the Fokker triplane for the time being, but later on we hope to return to it again, and to be able to give illustrations of some of its more important constructional details.



see p 472



(British Official.)

Bringing back the photographic evidence of bombs dropped during a day raid on the British western front in France.

HONOURS.

Honour for Commodore Godfrey Paine, R.N.

It was officially announced on March 12th that His Majesty has been pleased to approve of the appointment of Commodore Godfrey Paine, C.B., M.V.O., to be a Knight Commander of the Order of the Bath.

Commodore Godfrey Paine is Master-General of Personnel on the new Air Council. He was commandant of the Central Flying School for several years and later became Director of the Royal Naval Air Service with a seat on the Board of Admiralty.

Honours for the R.F.C.

It was announced in a supplement to the *London Gazette* on March 4th that the King has been pleased to confer the following rewards for gallantry and distinguished service in the field. The acts of gallantry for which the decorations have been awarded will be announced as early as practicable:—

Distinguished Service Order.

Temp. 2nd Lieut. (Temp. Capt.) B. E. Baker, M.C., Gen. List and R.F.C.; Temp. Capt. M. B. Frew, M.C., Gen. List and R.F.C.; Temp. Capt. A. H. Peck, M.C., Gen. List and R.F.C.

Military Cross.

Lieut. (Temp. Capt.) D. C. Bell, Middx. R., and R.F.C.; 2nd Lieut. R. J. Brownell, M.M., R.F.C. (S.R.); Temp. 2nd Lieut. P. Carpenter, Gen. List and R.F.C.; 2nd Lieut. (Temp. Capt.) M. E. Gonne, R. Fus. and R.F.C.; Temp. 2nd Lieut. F. C. Gorrings, Gen. List and R.F.C.; 2nd Lieut. J. S. Green, Gen. List, and R.F.C.; Temp. 2nd Lieut. T. Hobson, Gen. List and R.F.C.; Temp. 2nd Lieut. G. R. Howsam, Gen. List and R.F.C.; Lieut. (Temp. Capt.) P. D. Robinson, R.F.C. (S.R.); Temp. 2nd Lieut. (Temp. Capt.) B. J. Silly, Gen. List and R.F.C.; 2nd Lieut. A. Wald, R.F.C. (S.R.); Lieut. F. R. McCall, Can. Inf. and R.F.C.

It was announced in a supplement to the *London Gazette* on March 8th that the King has been pleased to approve of the following reward for distinguished service in the field dated January 1st, 1918:—

Military Cross.

Capt. W. H. L. O'Neill, Sikhs, I.A. and R.F.C.]

The King has been pleased to award the Distinguished Conduct Medal to the following for gallantry and distinguished service in the field:—

1753 Flight Sergt. G. A. F. Gibson, R.F.C.; 4965 1st Air Mech. S. Hall, R.F.C.; 769 Sergt. T. F. Stephenson, R.F.C.

Amendments.

The following are the correct descriptions of officers upon whom rewards have recently been conferred:—

Lieut. F. G. Huxley, M.C., Aus. F.C.; Capt. R. C. Philipps, M.C., Aus. F.C. (M.C. gazetted February 4th).

M.M. for Brave Nurses.

It was announced in a supplement to the *London Gazette* on March 4th that the King has been pleased to approve of the award of the Military Medal to the following ladies of the Nursing Service:—

Acting Sister Maud Alice Abraham, Civil Hospital Reserve; Acting Sister Florence Broome, Civil Hospital Reserve; Acting Sister Anna Georgina Boyd, A.R.R.C., Q.A.I.M.N.S. (R.).—For bravery, coolness and conspicuous devotion displayed in the performances of their duties on occasions when the Casualty Clearing Station has been under hostile shell fire and bombed by enemy aircraft.

Gallant Air Work.

With reference to the awards conferred as announced in the *London Gazette* dated October 18th, 1917, the following are the statements of service for which the decorations were conferred:—

Bar to Military Cross.

Second Lieutenant L. M. BARLOW, M.C., R.F.C., Spec. Res.—For conspicuous gallantry and devotion to duty in aerial combats over a considerable period, during the course of which he destroyed six enemy machines, and drove down three out of control. He has taken part in over 60 offensive patrols, of which he led 10. His gallantry and skill have been most marked and consistent. (M.C. gazetted August 25th, 1917.)

Lieutenant (Temp. Captain) C. F. COLLETT, M.C., R.F.C., Spec. Res. and Gen. List.—For conspicuous gallantry and devotion to duty in leading offensive patrols against enemy aircraft. Within a period of three weeks he successfully engaged and destroyed five enemy machines (three of them in one day) attacking them from low altitudes with the greatest dash and determination. His brilliant example was a continual source of inspiration to the squadron in which he served. (M.C. gazetted September 26th, 1917.)

Temp. Captain P. J. V. LAVARACK, M.C., Gen. List and R.F.C.—When attacked on artillery patrol by eight enemy aircraft he succeeded in driving down one machine, the rest being driven off east. Later, he drove off three scouts badly hit, which could not be followed owing to the clouds. In the last month he has fought and driven off enemy aircraft on seven occasions, and afterwards completed his work. (M.C. gazetted May 26th, 1917.)

Temp. Second Lieutenant (Temp. Captain) E. MANNOCK, M.C., R.E. and R.F.C.—He has destroyed several hostile machines and driven others down out of control. On one occasion he attacked a formation of five enemy machines single-handed and shot one down out of control. On another occasion, while engaged with an enemy machine, he was attacked by two others, one of which he forced to the ground. He has consistently shown great courage and initiative. (M.C. gazetted September 17th, 1917.)

Second Lieutenant (Temp. Capt.) D. F. STEVENSON, M.C., Yeo. and R.F.C.—For conspicuous gallantry and devotion to duty in obtaining photographs of a raid carried out by our troops which necessitated his flying through our barrage at a height of less than 1,000 ft. On another occasion he brought down a hostile machine. He was under heavy fire from the ground the whole time, and was eventually forced to land behind our lines owing to his petrol tank being shot through. (M.C. gazetted September 17th, 1917.)

Military Cross.

Temp. Captain R. N. ATKINSON, Gen. List and R.F.C.—This officer has done a large amount of successful artillery work, has taken part in many night bombing raids, and has continually distinguished himself by his fearlessness and determination in descending to low altitudes in order to attack hostile infantry and machine-guns. On one occasion, also he successfully attacked and drove down a hostile balloon.

Second Lieutenant J. A. BORET, R.W. Surrey R. and R.F.C.—For conspicuous gallantry and devotion to duty on many occasions. He has taken part in forty-one night bombing raids, many of which were carried out at a very low altitude and in bad weather. He has successfully inflicted considerable damage upon his objectives.

Temp. Second Lieutenant C. W. CUDEMORE, Gen. List and R.F.C.—For conspicuous gallantry and devotion to duty in attacking enemy aircraft and kite balloons. He has brought down at least three enemy machines and three kite balloons, and has taken part in numerous other engagements. He has consistently set a very fine example of pluck and determination in all his attacks.

Second Lieutenant (Temp. Lieutenant) J. DIAMOND, K.O.S.B., Spec. Res., and R.F.C.—For conspicuous gallantry and devotion to duty in co-operating with our artillery, often under most adverse conditions. On two occasions he ranged our siege batteries on hostile battery positions, causing numerous fires and explosions.

Temp. Second Lieutenant M. B. FREW, Gen. List and R.F.C.—For conspicuous gallantry and devotion to duty on patrol, showing a fine offensive spirit in many combats. He has shot down five enemy aeroplanes, on one occasion leading his formation to attack 22 Albatross scouts, and himself shooting one down.

Temp. Second Lieutenant R. E. G. FULLJAMES, Gen. List and R.F.C.—For conspicuous gallantry and devotion to duty during six months' continuous work with the artillery. During a battle he carried out four most valuable reconnaissances, bringing back information of our front line and directing artillery on to enemy infantry and the farm buildings where they were concentrating. During 19 days he had only one failure in 12 flights.

Temp. Lieut. H. D. HARMAN, Gen. List and R.F.C.—He has taken part in 38 night bombing raids, and has successfully attacked aerodromes, doing considerable damage. He has invariably displayed great gallantry and determination.

Lieutenant S. B. HORN, D.G., and R.F.C.—He has destroyed several hostile machines and driven down others out of control. On one occasion he attacked alone four enemy aircraft, shooting one down completely out of control. He has twice co-operated with an infantry attack, diving to a very low altitude. He has shown great skill and gallantry on all occasions.

Temp. Second Lieutenant H. A. JONES, attached Wilts R. and R.F.C.—When returning from a bombing raid the machine in which he was observer was attacked by four enemy aeroplanes. One was driven down, and though his pilot was severely wounded he continued the fight until his gun was put out of action by enemy fire. He showed great courage and determination.

Captain G. J. C. MAXWELL, Yeo. and R.F.C.—He has taken

part in 43 offensive patrols, in 14 of which he acted as leader. He has destroyed at least three enemy aircraft, and driven down nine others completely out of control. He has consistently shown great skill in aerial combats, and his fearlessness and fine offensive spirit have been a splendid example to others.

Temp. Second Lieutenant K. K. MUSPRATT, Gen. List and R.F.C.—He showed great initiative throughout the offensive operations, and seldom failed to become engaged with enemy aircraft when on offensive patrol. He destroyed several hostile machines. He took part in over forty offensive patrols, the majority of which entailed very severe fighting at low altitudes under heavy fire, and he set a magnificent example by his skill, gallantry and initiative.

Second Lieutenant A. C. T. PERKINS, R.G.A., Spec. Res., attd. R.F.C.—The machine in which he was an observer came into collision with another when he was at a height of 4,000 feet and had its right hand bottom plane so badly damaged that it got into a spinning nose-dive. Seeing this he immediately climbed to the outer bay of the left hand plane and by his weight there enabled his pilot to right his machine and to land without further damage.

Temp. Second Lieutenant W. M. PIERCE, Gen. List and R.F.C.—Whilst on artillery patrol his machine was attacked by a hostile scout. Although he was wounded by the first burst of hostile fire, he continued to work his gun, and succeeded in driving off the enemy machine which is believed to have been severely damaged. When taken to the C.C.S. he insisted on being sent to his squadron, in order to make a reconnaissance report on movement behind the enemy's lines. After doing this he was taken back to the C.C.S., where he was operated on and the bullet extracted. This officer has proved himself a most reliable observer. He has done consistent good work, and many of his reports have been of the greatest value.

Temp. Second Lieutenant (Temp. Captain) W. J. TEMPEST, D.S.O., Gen. List and R.F.C.—For conspicuous gallantry and devotion to duty on many occasions. He has successfully bombed railway sidings and aerodromes, often in misty and cloudy weather and at a low altitude, causing much damage to his objectives. On one occasion he descended to a very low altitude and dropped bombs on two moving trains, causing them both to be derailed. This officer has taken part in 34 night bombing raids.

Second Lieutenant (Temp. Lieutenant) F. W. H. THOMAS, Yeo, and R.F.C.—When returning from a bombing raid the machine in which he was observer was attacked by four enemy aeroplanes. One was driven down, and though his pilot was severely wounded he continued to fight until his gun was put out of action by enemy fire. He showed great courage and determination.

Captain C. T. VACHELL, Mon. R., and R.F.C.—He performed continuous good work on contact patrols and reconnaissances, flying at a low altitude. On one occasion in a very strong gale, flying low, he obtained information of the greatest importance.

Second Lieutenant (Temp. Lieutenant) L. WALMSLEY, E. York. R., Spec. R., and R.F.C.—While acting as observer during a flight over enemy lines the petrol pipe burst. With great coolness he attempted to stop the leak in spite of great danger from fire, eventually enabling the pilot to land safely in our own lines. He has consistently done very fine work throughout.

Temp. Lieutenant OLIVER BYERLEY WALTERS WILLS, R.F.C.—For conspicuous gallantry and devotion to duty. He carried out a reconnaissance on a hostile heavy howitzer emplacement nearly 8,000 ft. over the line. He descended to a height of 2,000 ft., and carefully examined the position. Having decided the exact position of the gun, he successfully

directed the artillery on to it, securing a direct hit on the emplacement.

Second Lieutenant FREDERICK WOODCOCK, R.G.A., Spec. Res., and R.F.C., Spec. Res.—For conspicuous gallantry and devotion to duty. He performed continuous and valuable work in contact patrols and reconnaissances, flying at a low altitude. On one occasion in a very strong gale, flying low, he obtained information of the greatest importance.

Gallant Work in Burning Airships.

It was announced in the *London Gazette* on March 8th that the King has awarded the Albert medal to Flight Lieutenant Victor Albert Watson, R.N., and the Albert medal in gold to Air-Mechanic, 1st Grade, Harold Victor Robinson and Boy Mechanic Eric Edward Steere, in recognition of their heroic conduct in the following circumstances:—

On the occasion of an accident to one of his Majesty's airships, which resulted in a fire breaking out on board her, Flight Lieutenant Watson, the senior officer on the spot, immediately rushed up to the car of the airship under the impression that one of the crew was still in it, although he was well aware that there were heavy bombs, attached to the airship, which could not be removed owing to the nearness of the fire and were liable to explode at any moment on account of the heat. Having satisfied himself that there was no one in the car, he turned away to render assistance elsewhere. At that moment one of the bombs exploded, and a portion of it shattered his right arm at the elbow. It was necessary to amputate the limb almost immediately.

Air-Mechanic H. V. Robinson and Boy Mechanic E. E. Steere, on the occasion of an accident to one of his Majesty's airships which caused a fire to break out on board her, approached the burning airship without hesitation, extricated the pilot and two members of the crew, all of whom were seriously injured, and then unclipped the bombs from the burning car and carried them out of reach of the fire. As the bombs were surrounded by flames, and were so hot that they scorched the men's hands as they carried them, Robinson and Steere must have expected that the bombs would explode.

"Mentioned in Despatches."

In the despatch dated May 30th, 1917, and published in the *London Gazette* on March 7th, from Major-General A. R. Hoskins, C.M.G., D.S.O., late Commanding in Chief, East Africa Force, the following are mentioned:—

Royal Naval Air Service.

C.P.O., 2nd Grade, E. Mathias, O.N. M.6508; Air-Mech, 2nd Grade, J. H. Seager, O.N. F.7818.

Royal Flying Corps.

2nd Lieut. M. C. Mossop, Spec. Res.; Temp. Lieut. F. L. Osman.; Z.212 Sergt. E. A. Andrews; Z. 252 Corpl. (Acting Sergt.) H. Atkins; Z.194 Sergt. (Acting Flight Sergt.) A. R. Geater; Z.211 Corpl. R. S. V. Parsons; Z.180 Sergt. T. Sim; Z.144 Sergt. (Flight Sergt.) A. L. Solomons.

In the despatch dated October 11th, 1917, from Lieut.-Gen. J. L. Van Deventer, K.C.B., Commanding in Chief, East Africa Force, the following are brought to the notice of the Secretary of State for War for meritorious service in the field.

Royal Flying Corps.

Temp. Capt. W. W. Carey-Thomas, M.C.; Temp. Lieut. A. E. Kennedy; 2nd Lieut. R. B. Lovemore, R. Fus.; Temp. 2nd Lieut. A. E. Reynolds, Gen. List.; 2nd Lieut. F. C. Smith, Spec. Res.; Temp. Major G. P. Wallace, D.S.O.; Temp. Lieut. L. Walmsley, M.C., E. Yorks. R.

Z.323 Corpl. A. W. Barnes; Z.123 1st Class Air-Mech. (Acting Corpl.) H. H. Blake; Z.134 1st Class Air-Mech. (Acting Corpl.) W. H. Huson.; Z.261 1st Class Air-Mech. (Acting Corpl.) L. J. D. Paré; Z.294 Sergt. E. C. Smith; Z.184 1st Class Air-Mech. (Acting Corpl.) C. Walker.



Prince Albert's New Work.

PRINCE ALBERT, who spent the week-end at Buckingham Palace, it is announced, returned on March 11th to his duties at a naval air station. It is understood that since he exchanged his naval duties for those of the Aircraft Service on account of ill-health Prince Albert has made good progress in the new branch and has made a successful flight.

New Superintendent of the R.A.F.

THE Secretary of the Air Ministry announces that Mr. Sydney Smith has been appointed Superintendent of the Royal Aircraft Factory, Farnborough. [Lieut.-Col. Sir Henry Fowler, K.B.E., now Deputy-Controller of Aircraft Production, was the Superintendent of the Factory.]

Saving a Pilot and Observer.

ALTHOUGH not actually won for air work, the award, dated October 18th last, of the Military Cross to the following officer is interesting, now that the details of his gallant action have been published:—

Second Lieutenant W. A. BEAMAN, Worcester Regt.—When in charge of a party carrying rations to the front line, he led his men through a heavy hostile barrage and delivered all the rations. Later, when one of our aeroplanes was brought down into the thick of an enemy barrage, he went out with great coolness and guided the pilot and observer to cover through the barrage. He showed great courage and initiative throughout the operations.

The Royal Aero Club of the United Kingdom

OFFICIAL NOTICES TO MEMBERS

THE FLYING SERVICES FUND administered by THE ROYAL AERO CLUB.

THE Flying Services Fund has been instituted by the Royal Aero Club for the benefit of officers and men of the Royal Naval Air Service and the Royal Flying Corps, who are incapacitated on active service, and for the widows and dependants of those who are killed.

The fund is intended for the benefit of all ranks, but especially for petty officers, non-commissioned officers and men.

Forms of application for assistance can be obtained from

the Royal Aero Club, 3, Clifford Street, New Bond Street, London, W.1.

Subscriptions.

	£	s.	d.
Total subscriptions received to March 5th, 1918	12,625	1	8
Staff and Workers of Gwynnes, Ltd. (Fifty-eighth contribution)		10	13
Hanover Congregational Church, Abergavenny, Mon.		1	1
		0	

Total, March 12th, 1918 12,636 15 11

H. E. PERRIN, Secretary.
3, Clifford Street, New Bond Street, W. 1.

THE ROLL OF HONOUR.

Reported by the Admiralty:—

Previously Missing, now presumed Killed.

Flight Sub-Lieut. H. Day, D.S.C., R.N.

Flight Commander (Acting Lieut., R.N.) W. F. Horner, R.N.

Accidentally Killed.

Flight Sub-Lieut. W. N. Cross, R.N.

F45199 Aircraftman 1st Cl. R. G. Arrowsmith, R.N.A.S.

F45201 Aircraftman 1st Cl. W. C. E. Brady, R.N.A.S.

Drowned.

Observer Sub-Lieut. B. G. Rowley, R.N.

Previously Missing (feared Drowned), now presumed Drowned.

Flight Sub-Lieut. F. C. Cressman, R.N.

Flight Sub-Lieut. N. I. Larter, R.N.

Previously Missing, now reported Prisoner.

Flight Sub-Lieut. H. St. J. E. Youens, R.N.

Reported by the War Office:—

Killed.

Lieut. D. G. Campbell, Cent. Ont. R., attd. R.F.C.

2nd Lieut. R. W. St. G. Cartwright, R.F.C.

2nd Lieut. E. L. Gresley-Cox, R.F.C.

2nd Lieut. E. W. Guest, R. Lancs., attd. R.F.C.

2nd Lieut. T. E. Kennard, R.F.A., attd. R.F.C.

2nd Lieut. T. J. A. Proudfoot, R.F.C.

2nd Lieut. N. F. Purser, R.F.C.

2nd Lieut. L. P. Roberts, R.F.C.

Capt. R. C. Scudamore, M.C., R.F.C.

2nd Lieut. R. Sherwood, R.F.C.

2nd Lieut. G. A. M. Webster, S. Lancs, attd. R.F.C.

2nd Lieut. H. J. T. Wilkes, R.F.C.

2nd Lieut. J. Winter, R.F.C.

2nd Lieut. C. Witt, K.R.R.C., attd. R.F.C.

106098 2nd Air-Mech. C. N. Harvey, R.F.C.

113340 2nd Air-Mech. F. G. Kingsland, R.F.C.

5288 Flight Sergt. H. Mills, R.F.C.

23959 Sergt. G. Pickard, R.F.C.

Previously Missing, now reported Killed.

Capt. E. E. Barnes, R.E., attd. R.F.C.

2nd Lieut. F. W. Gibbes, R.F.C.

Lieut. T. Grosvenor, Linc. R., attd. R.F.C.

Capt. R. N. F. Mills, A.S.C., attd. R.F.C.

Lieut. D. H. Scott, M.C., R.F.C.

Lieut. R. H. Sloley, R.G.A., attd. R.F.C.

Lieut. A. G. V. Taylor, I.A., Inf., attd. R.F.C.

11730 Q.A.M. J. Heedy, R.F.C.

88285 Sergt. G. E. Lambeth, R.F.C.

5788 Sergt. W. H. Roebuck, R.F.C.

Died of Wounds.

2nd Lieut. A. H. Green, R.E., attd. R.F.C.

2nd Lieut. R. D. White, R.F.C.

Accidentally Killed.

2nd Lieut. R. C. Doughty, R.F.C.

2nd Lieut. A. H. Galbraith, R.F.C.

Lieut. H. A. Laws, Sask. R., attd. R.F.C.

2nd Lieut. F. H. Robertson, I.A.R.O., attd. R.F.C.

Died.

2nd Lieut. H. A. Robinson, R.F.C.

2nd Lieut. W. C. Smith, R.F.C.

45687 2nd Air-Mech. J. Clark, R.F.C.

101944 3rd Air-Mech. T. Rafter, R.F.C.

16452 1st Air-Mech. W. J. Rayner, R.F.C.

Previously Missing, now reported Died as Prisoner of War in German hands.

78930 2nd Air-Mech. F. J. Smith, R.F.C.

Wounded.

Lieut. H. G. Ashton, London, attd. R.F.C.

Lieut. W. A. Barnes, R.F.C.

2nd Lieut. E. Birch, E. Lancs. R., attd. R.F.C.

Lieut. W. J. Blitch, W. Ont. R., attd. R.F.C.

2nd Lieut. A. O'C. Brook, Aus. F.C.

2nd Lieut. A. O. Collins, R.F.C.

Lieut. W. G. Duthie, R.F.C.

2nd Lieut. W. Hill, R.W. Kent, attd. R.F.C.

2nd Lieut. W. A. Keeler, R.F.C.

2nd Lieut. J. A. Moir, R.H.A., attd. R.F.C.

Major J. B. Quested, M.C., R.F.C.

Capt. J. A. Pattern, R.F.C.

2nd Lieut. J. C. E. Price, Lond. R., attd. R.F.C.

Lieut. W. H. Scanlan, R.F.C.

2nd Lieut. H. E. Sheppard, R.F.C.

2nd Lieut. C. Stuart, R.F.C.

Capt. C. Sutton, R.F.C.

48769 1st Air-Mech. T. W. S. Cox, R.F.C.

51216 3rd Air-Mech. J. Seery, R.F.C.

Previously reported Wounded, now reported not Wounded.

Lieut. F. D. Howitt, A.S.C., attd. R.F.C.

Previously reported Prisoners, now reported Wounded and Prisoners in German hands.

Lieut. F. R. C. Cobbold, R.F.C.

2nd Lieut. R. G. Frith, R.F.C.

2nd Lieut. H. R. Hart-Davies, R.F.A., attd. R.F.C.

Lieut. J. M. Leach, Yorks. R., attd. R.F.C.

Major F. J. Powell, M.C., R.F.C.

Missing.

2nd Lieut. C. H. S. Ackers, K.R.R.C., attd. R.F.C.

2nd Lieut. J. M. Allen, R.F.C.

2nd Lieut. A. Coustin, Aus. F.C.

2nd Lieut. C. H. Crosbee, R.F.C.

2nd Lieut. I. MacK. Dempster, R.F.C.

Lieut. M. W. Dickens, R.F.C.

2nd Lieut. H. F. Dougall, R.F.C.

2nd Lieut. D. C. Doyle, R.F.C.

2nd Lieut. E. O. Krohn, R.F.C.

Lieut. J. R. Law, Can. A.S.C., attd. R.F.C.

2nd Lieut. G. C. Logan, R.F.C.

2nd Lieut. G. R. T. Marsh, R.F.C.

Lieut. J. L. McLintock, R.F.C.

Lieut. W. B. Randell, Aus. F.C.

Lieut. G. M. Shaw, Cent. Ont. R., attd. R.F.C.

2nd Lieut. R. C. Wade, R.F.C.

2nd Lieut. S. G. Williams, Devon R., attd. R.F.C.

2nd Lieut. B. C. W. Windle, R.F.C.

Lieut. D. C. Wright, W. Ont. R., attd. R.F.C.

41223 1st Air-Mech. W. Belchamber, R.F.C.

Previously Missing, now reported Prisoners in German hands.

2nd Lieut. O. G. S. Crawford, R.F.C.
Lieut. F. E. Lefevre, M.C., Linc. R., attd. R.F.C.
2nd Lieut. P. C. C. Martin, Sher. Forest., attd. R.F.C.
Capt. S. J. Sibley, R.F.C.
2nd Lieut. L. G. Taylor, R.F.C.

2nd Lieut. L. J. Williams, R.F.C.
2nd Lieut. T. A. Urwin, R.F.C.
3217 Sergt. M. H. Everix, R.F.C.
94294 2nd Air-Mech. W. Hewitt, R.F.C.
49929 2nd Air-Mech. T. H. Hoggard, R.F.C.
Prisoner of War.
5077 1st Air-Mech. J. L. Mole, R.F.C.

"X" AIRCRAFT RAIDS.

"X 92" Raid (March 7th-8th).

THE following *communiqués* were issued by the Field-Marshal Commanding-in-Chief, Home Forces:—

"*March 8th, 12.15 a.m.*
"Hostile aeroplanes crossed the East Coast shortly after 11 p.m. and proceeded towards London. The raid is still in progress."

"*March 8th, 11 a.m.*
"Last night's air raid appears to have been carried out by seven or eight enemy aeroplanes, of which two reached and bombed London. The first two raiders approached the Isle of Thanet about 10.55 p.m. and proceed up the Thames Estuary. Both were turned back before reaching London. Meanwhile a third raider came across the Essex coast at 11.20 p.m. and steered west. At 11.45 it was reported over East London, and a few minutes later dropped bombs in the South-Western and North-Western districts. At 11.50 p.m., a fourth aeroplane, which had also come in across Essex dropped bombs to the north of London, and then proceeded south across the capital, dropping its remaining bombs in the northern district between 12.20 and 12.30 a.m. The remaining enemy machines, all of which came in across the Essex coast, were turned before they reached London."

"A certain amount of damage was caused to residential property in London, several houses having been demolished."

"*March 8th, 12.30 p.m.*
"Latest police reports state that 11 persons were killed and 46 injured in last night's aeroplane raid.
"It is feared that in addition to the above six bodies are still buried in the wreckage of houses. All these casualties occurred in London."

"*March 12th.*
"The total casualties caused in the air raid of the night of March 7th-8th are:—

	Men.	Women.	Children.	Total.
Killed	9	8	3	20
Injured	15	28	2	45

"In addition it is feared that one body still remains buried in the wreckage of a house."

German Version.

"*Berlin, March 8th.*
"During the night from March 7th-8th, London, Margate and Sheerness were attacked with bombs by several aeroplanes. Good effects were observed."

IN THE HANDS OF THE ENEMY.

THE following is an official list, published in Germany, of British machines which the Germans claim fell into their hands during the month of December, 1917:—

3 *Sopwiths.* *Single-Seaters.*
No. D. 2040, Lieut. Morrison, wounded.

In the case of one Sopwith single-seater the number of the machine and the name of the occupant could not be ascertained.

Two-seater.
No. M. 5081, Lieut. White, Lieut. Salter, both prisoners.

6 *Sopwith Camels.*
No. B. 6234, Lieut. L. G. Nixon, prisoner.
No. N. 6330, 2nd Lieut. Clark, prisoner.
Clerget Motor No. 98—1792—14921, occupant prisoner.
No. 8413, Lieut. I. D. Cameron, prisoner.
No. T. 2388, Lieut. Robert H. Dowan, prisoner.
No. B. 2414, Lieut. Cutbill, prisoner.

5 *Spad Single Seaters.*
No. A. 6642, A Keutal, wounded.
No. B. 3559, Lieut. H. A. Jeo, dead.
No. A. 6662, Occupant prisoner.
No. B. 6786, Lieut. Caler, prisoner.

In the case of one Spad the number of the machine and the name of the occupant could not be ascertained.

4 *Nieuport Single Seaters.*
No. B. 3678, Laurence Kert, prisoner.
No. 3586, Occupant prisoner.
No. B. 3555, Lieut. James Brydone, prisoner.
No. 6753, Lieut. Charles E. Edgen.

3 *R.E. Two-Seaters.*
No. M. 5020, Lieut. Thomas William Calvert, wounded;
Lieut. Albert William Pallmer, prisoner.

In the case of two R.E.'s the numbers of the machines and the names of the occupants could not be ascertained.

2 *B.E. Two-Seaters.*
No. B. 1153, identity of occupants could not be ascertained.
No. could not be ascertained, Lieut. Whitworth, Sergt. M. H. Everin, both prisoners.

2 *Bristol Fighters. Two-Seaters.*
No. A. 7270, Capt. J. E. Johnston, wounded; Lieut. Suchfort, dead.
No. unknown, Sergt. Charles Buttler, William Long, both prisoners.

2 *de Havilland Scouts. Single-Seaters.*
No. 9335, R. E. Angus, dead.

Two-Seaters
No. 7422, Lieut. Miller, wounded; Lieut. A. Charles Hoyles, dead.

1 *F.E. Two-Seater.*
No. A. 5678, both occupants dead.

1 *Martinsyde.*
No. B. 263, occupants prisoner.
1 *aeroplane of unknown type.*
J. G. Glendinning, J. Torrel, both dead.

1 *Bomber, type unknown.*
The number of the machine and the names of the occupants could not be ascertained.

Sir Douglas Haig's Message to the R.F.C.

THE following was officially issued on March 8th:—
The Commander-in-Chief has requested Army Commander to convey to Commander and all ranks of the First Brigade, Royal Flying Corps, his best congratulations on their splendid success in bringing down 18 enemy aeroplanes in one day, and to state that he is very glad to hear that all our aeroplanes returned safely.

From Germany to Holland.

THE following officers and men from Germany arrived in Holland recently for internment:—

Lieutenant M. R. Chidson, R.G.A., attd. R.F.C.
Captain G. N. Humphreys, R.F.C.
876 J. Chilton, R.F.C.
438 R. Foley, R.F.C.
87650 H. S. Foulsham.
25 H. Goodchild, R.F.C.

"Liquid Fuels for Internal Combustion Engines."

WHILE much has been written on the subject of internal combustion engines, the literature dealing with fuels for such engines is very limited, and what there is is largely cut of date. It is important that designers and others who are engaged on the production of such motors should know as much as possible about the fuel they will have to use, and the practical treatise which Mr. H. Moore has written under the above title should find a ready welcome among engineers and chemists. The book is divided into three sections. Part I deals with chemical and geological questions regarding petroleum, shale oil, coal and lignite tars, alcohol, &c. Part II deals with the practical use of these fuels in connection with carburettors, vaporisers and atomisers; while in Part III the questions of the examination of liquid fuels and calorimetry are given attention. The book is published by Messrs. Crosby Lockwood and Co., the price being 12s. 6d.

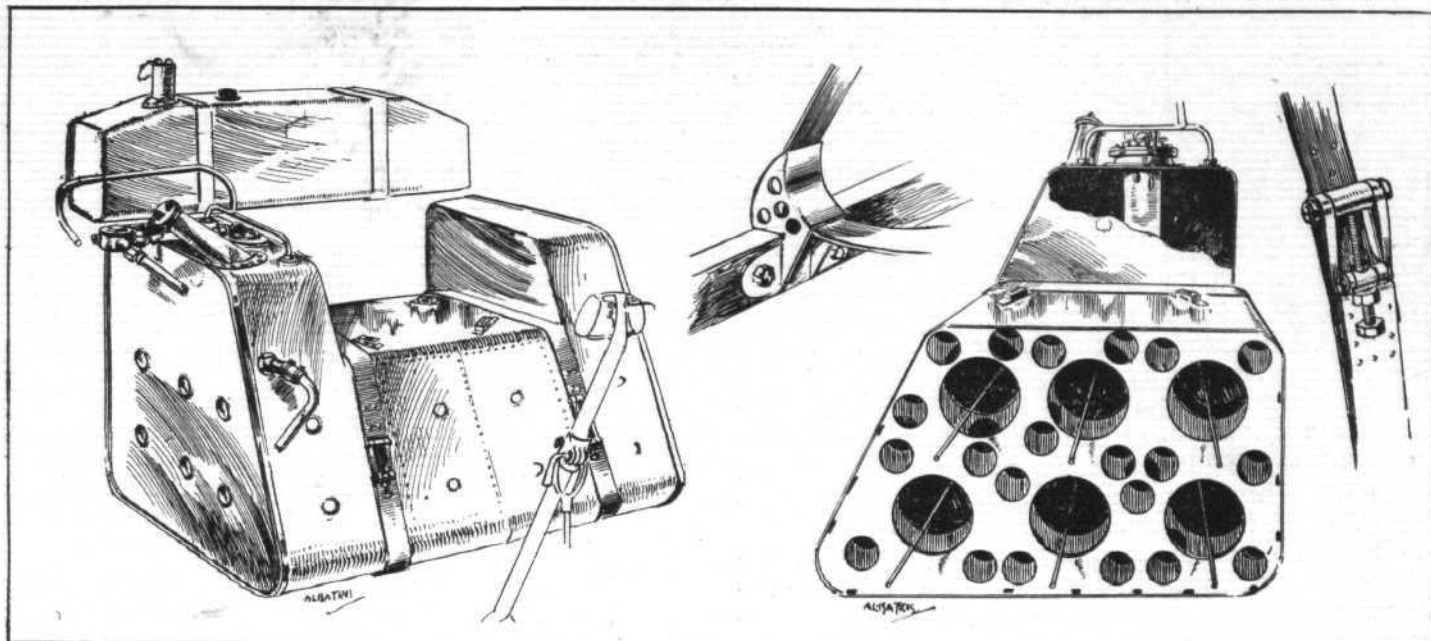
AN ALBATROS FIGHTING BIPLANE (see following pages).


Fig. 12.—The main petrol tank of the Albatros biplane. The pilot's seat is placed in the recess, and is prevented from sliding about by the steel clips shown. On the right is shown a section of the tank, with the internal bracing rods and baffle plates. The insets show the brackets supporting the tank, and the arrangement for tightening the straps that hold the tank.

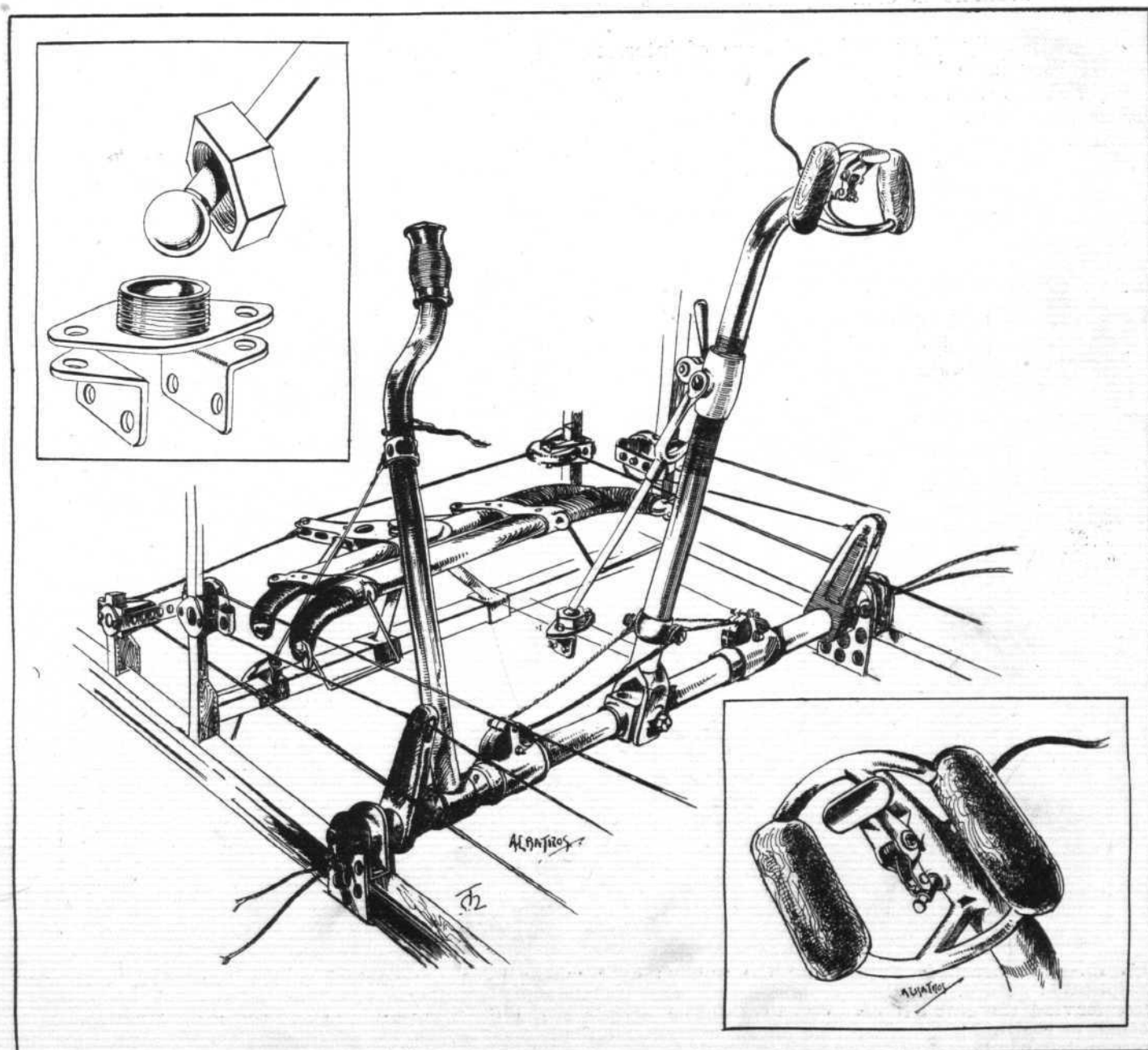


Fig. 13.—The controls of the Albatros biplane. Insets show the ball and socket joint for the control lever locking arrangement, and the hand grip with the gun trigger on the main control lever.

AN ALBATROS FIGHTING BIPLANE.

(Continued from page 255.)

THE cockpits of the Albatros are arranged in the fashion now universally adopted for two seaters, by Allies as well as by the enemy, *i.e.*, the pilot in front and the gunner in the rear cockpit. The pilot's seat is mounted, in the Albatros, on the main petrol tank, which has two annexes on top, one on each side of the seat. This arrangement is clearly indicated in Fig 12, in which the small clips preventing the seat from sliding about on the tank will be noticed. The filler cap is mounted on a tubular projection extending through the *fuselage* covering, thus enabling the tank to be refilled from the outside. A smaller auxiliary tank is mounted above and to the rear of the main tank, in the the gunner's cockpit, as a matter of fact. Both tanks are connected up to a by-pass or distributor, so that both or either tank can be connected up to the engine, two pumps being provided for maintaining the necessary pressure, one driven by the engine and the other hand operated. Thus, whatever tank is being used, petrol is fed to the carburettor under pressure. This has probably been a necessary provision, as the tanks are placed relatively low and gravity feed would, therefore, be apt to be unreliable when the machine is climbing at a fairly steep angle.

Constructionally the petrol tanks are of interest in that they have been internally braced by rods running across from side to side, the attachment of the rods being visible on the outside of the tank as shown in Fig. 12 (p. 285). To prevent the petrol from slushing about inside when the tank is nearly empty

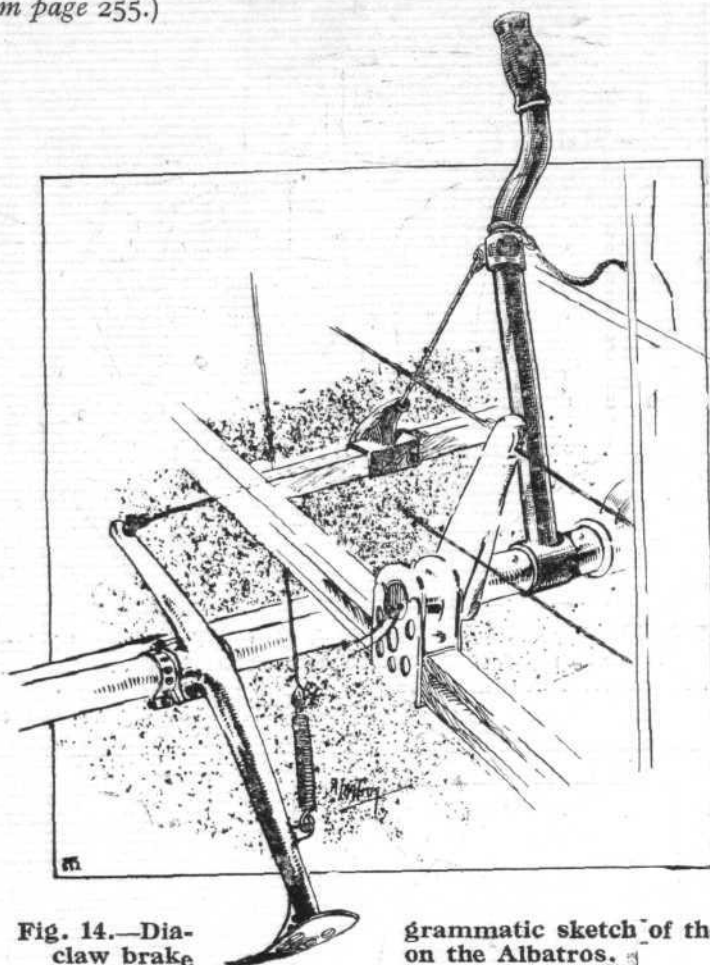


Fig. 14.—Diagrammatic sketch of the diagonal brake on the Albatros.

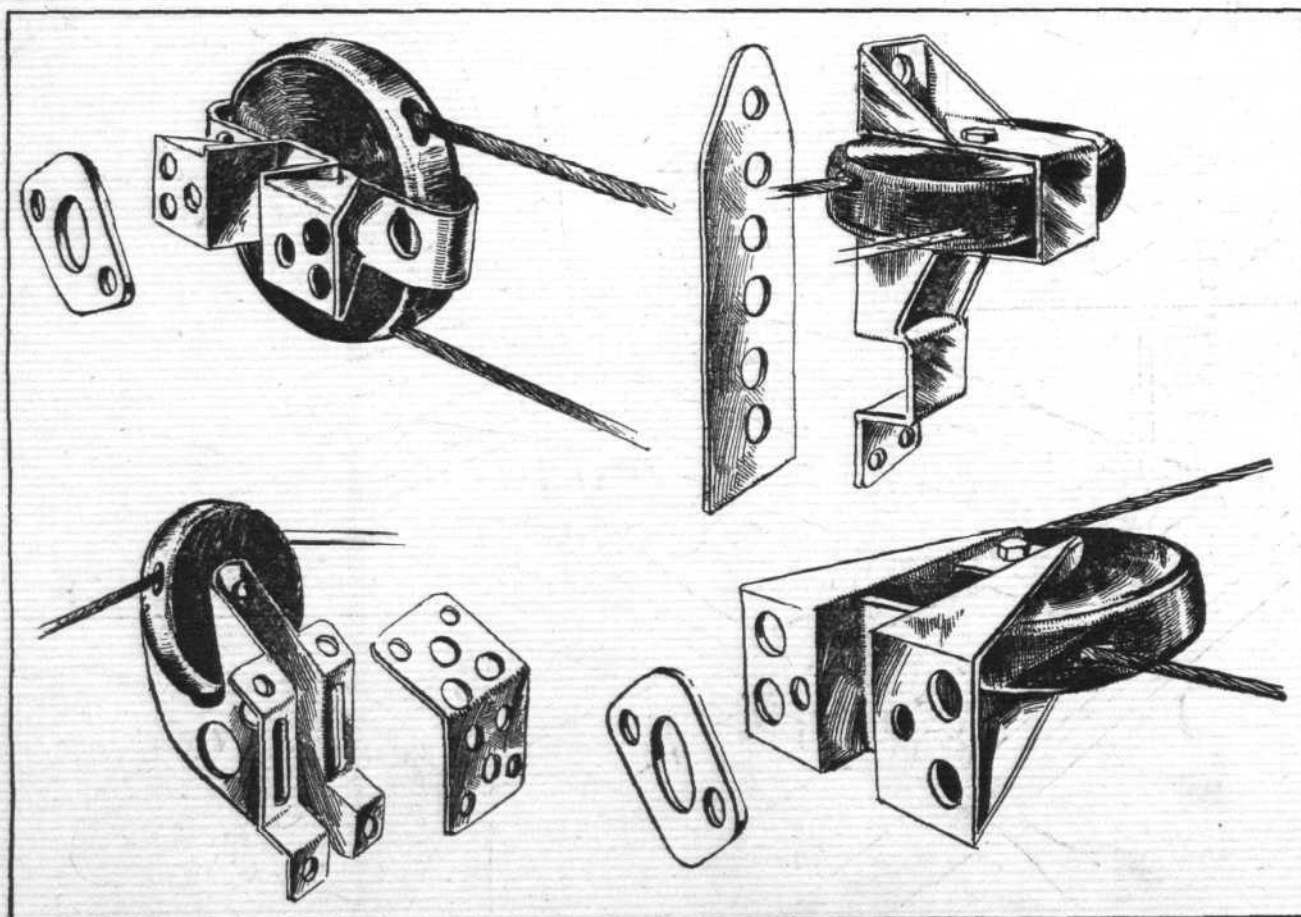


Fig. 15.—The brackets supporting the pulleys over which pass the control cables are of a somewhat complicated nature. In the top left-hand corner is shown the pulley over which the elevator cable passes after leaving the crank lever on the rocking shaft (see Fig. 13). The pulley in the top right-hand corner is bolted to the middle *longeron* just ahead of the tail plane, and serves to guide the elevator cable. In the bottom left-hand corner is shown the pulley mounted on the top *longeron* in front of the tail plane, over which passes the elevator control cable, and the pulley shown in the bottom right-hand corner guides the rudder cable in front of the foot bar, where its direction changes from a lateral to a longitudinal one.

baffle plates are fitted dividing the main tank longitudinally into five compartments, communicating with each other through the circular openings shown in the section of the tank, Fig. 12. As the supply pipe leaves the tank fairly high up—it can be seen on the front right-hand side of the tank in Fig. 12—it is carried down inside to the bottom of the tank so as to enable the last drop of petrol to be forced out and into the carburettor. The main tank is mounted on brackets as shown in one of our sketches, and is secured by metal straps having an arrangement for adjustment.

In Fig. 13 (p. 285) is shown the general arrangement of the controls. There is a transverse rocking shaft on which are mounted at each end crank levers for operating the elevators, while in the centre, pivoted so as to be free to rock laterally, is mounted the main control lever. Mounted on the transverse shaft, but not moving with it, is another lever, which operates the claw brake mounted on the wheel axle. The arrangement of this brake is shown in Fig. 14.



Our Air Supremacy in Palestine.

"OUR aerial supremacy has been maintained, and though the German aviators show signs of more activity, they pay dearly for it," says Mr. W. T. Massey in a despatch from the Palestine headquarters. "This week three machines were brought down in air fights by the R.F.C. and the Australian Flying Corps, who have done much bombing work this year. In the last two days they have made long flights to the Dead Sea to harass the enemy's communications with the Hedjaz. Once they dropped many bombs on Katrani station and the camps and aerodrome west of Kerak. Excellent results were observed. Yesterday they bombed the station south of Karani."

Aerial Ambulance in Desert.

ANOTHER instance of an aeroplane being used for ambulance purposes is told by Mr. W. T. Massey in a message from the Palestine Headquarters. He says that when a little mobile force rounded up the Turkish post at Hassana, on the eastern side of the Sinai peninsula, one of our men received so severe a wound that an immediate operation was necessary.

By pulling the lever the free end of the claw brake is pulled upwards, thus causing the claw to dig into the ground. On releasing the lever, the brake is returned to its normal position by the action of the spring shown in the sketch.

The transverse rocking shaft is carried, as indicated in Fig. 14, in two bearings mounted on the lower longerons. A forward and backward movement of the control lever causes the shaft to oscillate, and with it the two crank levers to which are attached the elevator control cables. These cables run from the crank lever, around a pulley slightly forward of the transverse shaft as shown in the sketch, and hence to the top crank lever on the elevator. The return cable runs from the crank on the under side of the elevator to the crank on the transverse shaft. *En route* these cables pass over pulleys mounted in the rear position of the fuselage, these pulleys being shown in detail in some of the accompanying sketches (Fig. 15).

(To be continued.)

An airman at once volunteered to carry the wounded man to the nearest hospital, forty-four miles away across the desert, and by his action a life was saved.

Aerial Mails for Denmark.

QUITE a deal of useful work is being done by the Danish Aeronautic Society in preparing for aerial mail services which it is hoped to start when the war is over. Negotiations are pending with thirty-nine municipalities in the matter of constructing landing stations, including hangars 1,300 feet square. Routes from Copenhagen to Odense, Frederica and Esbjerg, from Copenhagen to Kallundborg and Aarhus and from Copenhagen to Aalborg have been mapped out, and a route from the Danish capital to Gothenburg and Christiania is also planned.

More Aeroplanes from Britons Overseas.

THREE more aeroplanes have recently been presented to the Air Ministry by the Patriotic League of Britons Overseas, the funds being provided by British residents in Peking, Rio de Janeiro and Nicaragua respectively. The League has now provided 12 seaplanes and 32 aeroplanes.



(British Official.)

A bombing machine on the British western front in France tucking its eggs under its wings prior to a daylight trip, with one of its attendant fighting scouts in waiting.

AIRISMS FROM THE FOUR WINDS.

WITHOUT a possible doubt that highly valuable scientific body, the Aeronautical Society of Great Britain, has the most urgent demands upon every penny of its Funds, for the purpose of promoting the side of aeronautics for which the Society stands. Yet the Society patriotically put up its

funds towards the equipment of a seaside Convalescent Home in connection with the R.F.C. Hospitals at Eaton Square and Bryanston Square, will on that day be the venue for a host of the most popular artistes available in London, when their efforts will be devoted to entertaining those who have



THE PRINCE OF WALES' TOUR IN THE CLYDE DISTRICT.—The Prince inspecting the cockpit of an aeroplane at the works of Messrs. G. and J. Weir, Ltd.

little quota at the Trafalgar Square Tank last week, by subscribing £100 towards beating German militarism.

NEXT Sunday afternoon, March 17th, the London Coliseum should boast of a record audience. This beautiful house, which has been lent by Mr. Oswald Stoll for an appeal for

been fortunate enough, plus generosity, to secure seats for this unique show. Amongst those who have already promised to appear are George Baker, Loie Barker, Donald Calthorp, Bessie Clifford, Margaret Cooper, Coram, Murray Davey, Lou Edwards, Regine Flory, Gresham Singers, Vivian Foster, Renee Kelly, Kyasht, Violet Loraine, Austen Melford, Melsa,



WITH THE BRITISH FORCES IN ITALY.—Cookhouse door time at an aerodrome. Note the "dope." (British Official.)



In Trafalgar Square on War Loan Work.—Lady Drogheda, who has worked so strenuously for the cause, and who flew over London in an airship on Saturday, distributing leaflets to the public.

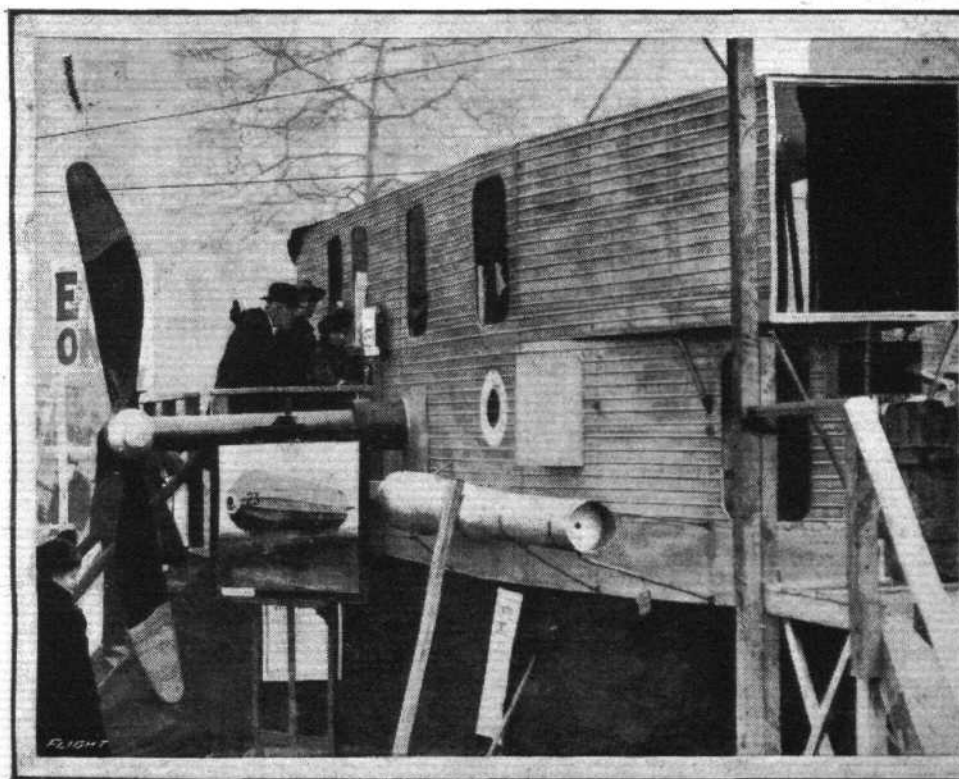
Marie Novello, Jan Oy-Ra, Courtice Pounds, Robert Radford, Madge Saunders, Ella Shields, Stralia, Leo Strockoff, Percy Tarling, Albert Whelan and Flora Woodman.

LADY HENDERSON is Chairman of a large Ladies' Ticket Selling Committee, in which she is being assisted by



In Trafalgar Square on War Loan Work.—Miss Dorothy Lane, the popular "Aladdin" in the pantomime, "receiving" one of the pigeons despatched from various centres, conveying applications for War Bonds.

Mrs. Harrington Stuart and a number of ladies prominent in the world of flying. To save time, those anxious of making sure of a seat, can 'phone up the Coliseum Advance Booking Office, Gerrard 7541, before it is too late. This method of support for the R.F.C. Hospitals finds favour in its recognition by Lord Rothermere, General Sir David Henderson and the Members of the Air Council.



THE AIRSHIP GONDOLA IN TRAFALGAR SQUARE DURING WAR LOAN WEEK.—On the right Admiral Sims, the Commander of the U.S.A. fleet, inspecting the gondola.



A British airship passes over the National Gallery during War Loan Week.

WHEN the "International Air Service" across Central Europe, foreshadowed from Germany for an after-war item of extension, becomes a fact, it has been suggested that Leipzig should become the chief air-line junction. Leipzig, however, owing to its accessibility from all parts, being already a Clapham Junction centre of railway activity multiplied by about ten, has entered a strong protest against the honour thus sought to be added to its already overburdened responsibilities. There hardly appears as if there were any reason to insist on this centre being selected, because, after all, the conditions surrounding the opening up of air-routes throughout the world, are so utterly foreign to any surroundings which a network of railway termini demand, that it may well be that Leipzig would be anything but a ideal spot to select for the purpose.

THERE appears to be a little bit of a mix-up in the calculations of various correspondents in the daily press, in regard to the actual number of air raids so far carried out by Germany on England. As mentioned last week, the hundredth episode in this connection, it is stated, was celebrated in Hunland by

the distribution of Iron Crosses and decorations galore, and now there arise correctors of this figure, it being claimed that the last particular raid before the recent moonless raid, was the eighty-ninth. Leaving out of the question any possible abortive attempts by the German flyers, which our authorities have not thought worth while placing officially on public record, a reference to "FLIGHT" "X" raids will be found to give the total as 91 up to and including that on February 18th-19th, when "no casualties or damage were caused." This is the same episode which Mr. Pemberton Billing in Parliamentary language afterwards suggested was as great a myth as "Mrs. Arris." "FLIGHT," needless to say, has consistently kept a very careful record of each raid, and where the "side-slip" of the correctors probably comes in, is in not having taken into account the raids which preceded the "X" raids. Here, again, it was in the pages of "FLIGHT" that it was originally advocated that secrecy should be observed as to the locality of air-attacks, as with little doubt the Germans were in their initial visits more concerned with mapping-out "land-marks" from above for the guidance of their raiders than with inflicting great damage. And thus it came about that the suggestion was speedily realised as solid sound sense by the authorities, and the "X" raids as recorded in "FLIGHT" were the result in a great measure, to the undoing of the worst efforts of the Hun pirates.

It could have been reckoned upon with certainty that Jack Joel would not be behindhand in adding to the total of the War Loan week, but the method adopted by an American pilot of reminding him in good time not to miss so good an investment was assuredly unique. This particular U.S.A. patriot, so the story runs, at the suggestion of a member of the St. Albans Committee, flew to Childwick Bury, the residence of Mr. Joel, with an application form enclosed in an envelope and weighted with lead. Swooping low he made an excellent "drop," and delivered the letter practically on the front doorstep. Mr. Joel responded, and the same night sent a cheque to the St. Albans Association for £25,000.

It was this same pilot who put up a demonstration in the square by giving a succession of feats, described as "just missing the town hall flagstaff, and distributing bills to the crowd, and cutting short the Dean's speech four times when he was trying hard to get in his thirdly."

"HANSARD" as a rival to the "Pink 'Un" can hardly fall within the category of *likely* events to come off. Yet if many little stories, such as appear in that very official publication, in this case attributed to Sir H. Meux during his remarks on the Navy Estimates on Wednesday of last week, are embodied, "Hansard" should surely have quite a vogue for those who are on the look-out for tales with a moral.



Some of the officers of a famous squadron with the British forces in Italy foregathered between strafing jaunts against the Austro-German forces.

(British Official.)

THREE MEN IN A FLYING BOAT.

By DOUGLAS W. THORBURN.

I HOPE Jerome K. Jerome will not mind my adaptation of his famous title. I should like to have added by way of a sub-title, as he did: "To Say Nothing of the Dog," but there was no dog in this episode, so I'll simply say nothing about it. Jerome's story concerned a picnic, but this affair was no picnic. It began with a visit on business to a certain well-known seaplane factory somewhere on the coast. I found myself sitting next to a Lieutenant, R.N.V.R., in the train, and when a ticket-inspector looked in early in the journey to see if our tickets were of the correct vintage, it transpired that we were bound for the same station. I summed him up at once. He had the small leather suitcase and the air of settled melancholy which characterised all Admiralty Acceptance Officers, and I guessed instinctively that another of Messrs. Saxon Jackson's Famous All-Weather Flying Boats (They Float on Water—Try One in Your Bath) was ready for testing. And so it was, more or less.

We chatted on the way down, and I remember our chief topic of conversation was Food. Not cards or coupons, but real food—the stuff we eat, or used to. We had both left home early without anything very substantial in the way of breakfast, and all we were really interested in was the prospect of a good lunch as soon as we reached our destination. We talked about aviation and other matters, but always came back to that lunch. On arriving at the station we were delighted to see a distinguished Test Pilot awaiting us in his almost equally distinguished car. It looked as though in a very few minutes we should be comfortably seated in a hotel demanding our rations for the week, but he had other views. The tide, he told us, was at its best, and as advertised, would wait for no man. Unless the Flying Boat was tested at once—before lunch—the day would be wasted, and to-morrow it might rain. Personally, I did not care very much if it snowed, but in vain did I point to the looseness of my waistcoat, and the pale face of my R.N.V.R. companion. Before we had time to realise what was happening we were being whirled around the hundreds of corners which embellished the few miles of alleged road between the station and the seaplane factory.

Of course, when we got there the Flying Boat was not ready. I understand they never are. They resemble revues, which someone said are not produced—only postponed. I have often seen Test Pilots at work (I have also seen them at play, but that is quite another story), and have always noticed that they are never surprised at anything. If the weather breaks up, or the machine breaks down, or the Acceptance Officer breaks out into profanity, the civilian Test Pilot of to-day never shows any astonishment. I believe that even if one of them arrived at an aerodrome and found the machine quite ready for testing, with its tanks actually filled, he would not be surprised—outwardly at any rate. On this occasion, however, the delay was very brief, and we just had time to dash into the canteen and hastily devour a little beef and beans while the finishing touches were being given. I do not wish to imply for one moment that we were in-hospitably received, because the noon-day meal at this canteen was really over, and besides, they were not expecting visitors to lunch; but it was nobody's fault that the meal was not a great success.

We found practically the whole staff of the Saxon Jackson Flight Company (this, I may say, is an entirely fictitious name) assembled on the sea-shore around the new Flying Boat. All the girls who had polished the copper rivets, or done the dress-making jobs on the fabric, or cleaned the cabin windows or painted the targets on the sides for the Huns to aim at; all the men who had built the hull, or attached the tail, or arranged the motors side by side, or poured in the petrol and Castrol—even the men who had stood by and watched the others doing the work, were there. It was a notable gathering, obviously glowing with pride at the launching of the latest of its U-boat Busters.

The motors were already roaring, sometimes the one and sometimes the other. At last came the triumphal moment when both were persuaded to roar at once, and this encouraged the Test Pilot to array himself in leather and Triplex. The Acceptance Officer, who had been walking around the machine entering number-plate figures and general remarks in a notebook, also prepared for the flight. At this moment the Pilot discovered he had no passenger to occupy the third seat, and asked for one, looking at me. It was a beautiful sunny day and the sky was blue, and I did not hesitate. I forgot to look at the sea until later on.

I climbed on board, borrowed a cushion after seeing the sort of seat I was expected to sit on, and we started the descent

of the slip-way. It was a very slow and stately descent towards the water's edge, inch by inch—I had nearly said winch by winch—and no Gadarene swine business about it. At last the waves were lapping around the hull. We were cast adrift, and the Pilot put his foot on the accelerator or did something of that kind.

It was about this time I first noticed the sea, and realised how much there was of it, and what it was doing. The Flying Boat leapt forward, and I stood up to look out of the cabin roof to see what happened. The first thing that happened was the arrival of a large wave, which broke right over us and drenched me. I promptly sat down, and the next wave hit us from beneath and made me stand up again. I decided it would be better to remain on my feet, holding tight for the next bump. It was not long in coming, and the Acceptance Officer went up and then came down with such determination that he crashed right through the wooden seat on which he had been sitting. I hope he gets the wound stripe he said he was going to apply for, and wonder if he will wear it on his arm.

When once we had left the water and the shock of parting was over it became most enjoyable. We cruised up and down the coast at a moderate height in real comfort. As we passed over the nearest town our Pilot left the machine to fly itself—which it did very successfully—while he devoted his energies to waving a handkerchief (my handkerchief) at what appeared to be a man cleaning a bedroom window in a large building near the front. The only thing wrong about the machine was the speed indicator, which registered 90 knots when we were climbing, and 40 knots when we put our nose down, so after half an hour or so we decided that such figures were hardly to be relied upon and it was advisable to return. The "landing" on the water was excellently done, and not nearly so strenuous as the getting-off had been, but alas!—this was not the end of the trip by any means. This, in fact, is where the plot began to thicken.

I gathered that three ropes would now have to be fixed, one to our nose in order to haul us back on to the slip-way and two on to our tail to steady our progress. This delicate task was to be undertaken by a motor-launch, with a skipper who might have suitably illustrated any of the stories of W. W. Jacobs. He was assisted by two other sea-faring gentlemen in shirt-sleeves, and in addition a small dinghy manned by a very athletic and dare-devil crew of two was somewhere in the offing. I don't exactly know what an offing is, but have an idea it has something to do with a wellkin.

The Pilot and the Acceptance Officer perched themselves precariously on the outside of our little cabin, holding on with one hand and preparing with the other to catch a rope which was going to be thrown to us by the crew of the motor-launch. I meanwhile stood on the seat vainly endeavouring to hold the Flying Boat steady. The launch charged down upon us over the waves, which were running high enough to conceal it from view half the time. When it got near it apparently realised it might run us down, so it suddenly altered its course. It passed us at a distance of roughly a hundred yards, and the thirty yards of rope which were thrown in our direction missed the grasp of the Clutching Hand Brotherhood, as a short mathematical calculation will show, by seventy yards. One or two very personal remarks followed from our Pilot, but fortunately the launch was too far away for the skipper and his accomplices to hear.

They described a wide circle around us and then tried again. This time they got within fifty yards, but the rope ration was still inadequate. Our Pilot's vocabulary, however, was not. He drew particular attention to the fact that the tide was going out, and the wind was drifting us on to a wooden breakwater, and we could not start our motors up again, and that if he—the skipper of the launch—allowed his engine to stop we should all be drowned, and he would go to a very uncomfortable place, and serve him right. He said a lot more which I forget for the moment, and the Acceptance Officer assisted him to say it.

These histrionic efforts were punctuated by the crash of the waves against our lower planes and the occasional bursting of fabric and the breaking of ribs. It was a cheerless outlook, and as the launch started once more for a cruise on the horizon before making another attempt to send us a line, I began to wonder if life was worth living. The pitching and tossing were getting horribly monotonous. Our Pilot, who was not looking as well as usual, said he was getting "fed-up," and commenced the composition of a new Hymn of Hate, dedicated to the crews of all motor launches. The

Acceptance Officer admitted a certain indisposition, and in order to distract his own attention climbed aloft to have a look at the motors and make a few notes. When in doubt an Acceptance Officer always gets out a notebook.

And they both began to make personal remarks about me. They said my face was green, which I deny, or in the alternative, as lawyers say, if it was green it must have been the reflection of the sea. I thought of all the stories I had heard about those who suffered from *mal-de-mer*—of the man on board the Channel steamer who, when asked if he had dined, replied "On the contrary!"; and of the man who said that for the first hour he was afraid he would die, and for the second hour he was afraid he would not. If Britannia rules the waves, as is alleged, why has no Wave Controller yet been appointed? It was a nasty, vicious sea, and we endured it for over two hours, while the launch went round and round, missing us every time until it made us giddy. At last a rope was hitched on.

By that time one of us was no longer able to conceal his feelings (I won't say which one it was), and if Lord Rhondra had seen him—well, I believe the penalties for wasting food are heavy. The first rope having been made secure, it was not long before our good friends in the dinghy, tossing about like a helpless cork, managed with extraordinary agility to get the guide-ropes on our tail at last, just as the tide was reaching a point at which it would have been impossible to get us on to the slip-way, and we were successfully brought ashore.

If anyone tells me after this that a test-pilot's life is a life of idle luxury, interspersed with occasional aerial joy-rides, I am prepared to contradict him.

The third drink we had on arriving at the hotel, I remember, was tea.

P.S.—I have just met Clifford Prodder and told him I have tried to write a description of that episode, and he said I should not have mentioned his name. He will see, if he reads it, that I did not.



INTERNATIONAL AIRCRAFT STANDARDS.

(Continued from page 262.)

3S31—Specifications for Heat-Treated Carbon Steel Forgings and Stampings.

(95,000 lbs. per square inch Tensile Strength.)

GENERAL.—1. The general specifications, 1G1, shall form, according to their applicability, a part of these specifications.

MATERIAL.—2. The steel from which these forgings or stampings are made shall conform to I.A.S.B. specifications 3S35; the steel shall have the following composition:

Number	Carbon	Man- ganese	Phos- phorus maxi- mum	Sulphur maxi- mum
1045	0.40-0.50?	0.50-0.80	0.045	0.050

MANUFACTURE.—3. Heat Treatment.—(a) Forgings or stampings should be annealed before heat treatment.

(b) Forgings or stampings which fail to meet the physical tests may, at the option of the purchaser, be reheat treated.

WORKMANSHIP AND FINISH.—4 (a) The forgings and stampings must be uniform in quality, free from pipes, laps, cracks, twists and seams, and must have a workmanlike finish.

(b) A forging or stamping may be rejected at any time because of injurious defects or faults which are revealed by manufacturing operations, notwithstanding that it has previously passed inspection. Such rejected forgings or stampings shall be returned to the manufacturer at his expense. This clause shall not apply to materials fabricated after export.

PHYSICAL PROPERTIES AND TESTS.—5. (a) The heat-treated forgings or stampings shall have the following physical properties:

Tensile Test.—(a)

	Pounds per square inch	Kilograms per square milli- metre.
Minimum tensile strength..	95,000	65.8
Minimum yield point	70,000	49.2
Minimum elongation in 2 inches or proportional gauge length	18 per cent.	
Minimum reduction of area	45 per cent.	

Impact Test.—(c) When impact-testing machines of the pendulum type are available, tests shall be carried out if required to determine the specific impact work of rupture in foot-pounds (or kilogrammetres). Results markedly lower than the average for this type of material will be sufficient cause for further investigation (or reheat treatment) of the material.

Brinell Hardness Test.—(d) This test shall be made after the tensile test has been met. The procedure shall be as follows:

(1) Forgings with a Prolongation for Tensile Test Specimens: A hardness test shall be made on the prolong and on the opposite end of the forging. The hardness values obtained must agree within 3 per cent. Hardness values of other forgings in the same lot must agree with the average of the two test values within 3 per cent.

(2) Forgings or Stampings without Prolongations: Hardness tests shall be made on the forgings or stampings selected for the tensile test and must agree within 3 per cent. The hardness values of other forgings or stampings in the same lot must agree with the average of the values so obtained within 3 per cent.

(3) Forgings or Stampings from which a Tensile Test Specimen can not be procured: A hardness test shall be made on the forged bar representing the forgings or stampings. The hardness values of the forgings or stampings in the lot must agree with that obtained on the bar within 3 per cent.

SELECTION OF TEST SPECIMENS.—(6) Forgings or Stampings weighing 6 lbs. (3.7 kg.) or over.—(a) If desired, each piece may be required to have a prolongation for the tensile test. Two per cent. of the forgings or stampings in each lot shall be subjected to the tensile test unless a tensile test is specified for each forging or stamping.

(b) Forgings or Stampings weighing less than 6 lbs. (3.7 kg.) and of Suitable Section for securing a Tensile Test Specimen.—(b) Two per cent. of the forgings or stampings shall be taken for the tensile test.

(c) Forgings or stampings from which no tensile test specimen can be secured shall be represented by a bar forged from the same material and to the ruling section of the forgings or stampings in the lot. The bar must be heat-treated with the lot which it represents.

(d) At least one tensile test shall be made for each lot of 50 forgings or stampings.

(e) A hardness test may be required on each forging or stamping offered. At least 25 per cent. of the pieces in each lot shall be tested for hardness.

(f) All the forgings or stampings in a lot shall be heat treated at the same time, and if possible shall be from the same heat of steel.

DIMENSIONS AND TOLERANCES.—7. The forgings and stampings shall conform to the dimensions on the drawings within the tolerances specified. Surfaces which are to be machined shall admit of finishing to the required dimensions without leaving trace of the original surface.

PACKING, SHIPPING AND DELIVERY.—8. Small forgings or stampings shall be boxed for shipment; the gross weight of individual boxes must not exceed 220 lbs. (100 kg.). Each kind and lot of forgings or stampings shall be kept separate as inspected.

(To be continued.)

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The Raid on Naples.

NAPLES was visited by hostile aircraft on the morning of March 11th, about 20 bombs being dropped on the city, almost all of them being on the residential quarter, thus causing no damage of a military nature. There were 16 persons killed and 40 injured amongst the civil population. A bomb which dropped on the Hospital of the Little Sisters near Arco Mirello claimed seven victims amongst those sheltering there.

A message from Rome says the population everywhere remained quiet, and the ambulance services worked in a most praiseworthy manner.

Germany Apologises to Holland.

It has been officially announced in Holland that the German Government has expressed to the Dutch Government its deep regret at the falling of a bomb from a German aeroplane in Dutch territorial waters on the occasion of the arrival of the British convoy on February 27th. The bomb, it is added, broke loose from the aeroplane when the airman observed that he was over Dutch territorial waters, and turned quickly in order to change his course.

CONDITIONS OF SERVICE IN THE AIR FORCE.

AIR FORCE MEMORANDUM No. 1, bearing date of March 1st, has now been issued, and takes the form of a pamphlet setting forth a general view of the conditions of service in the Air Force, so that officers and men now serving in or attached to the Flying Services can see how they are affected. The following is the text of the memorandum.

Procedure for Constitution of the Air Force.

1. The Air Force (Constitution) Act, 1917, provides that any officer, warrant officer, petty officer, non-commissioned officer or man who, on a date to be prescribed, belongs or is attached to the Royal Naval Air Service or the Royal Flying Corps, may be transferred or attached to the Air Force without his consent. This date will be fixed by Order in Council.

2. It is also provided that any person transferred or attached may, within three months from the time when he receives notice of such transfer or attachment or such longer period as in any particular case the Air Council may allow, give notice to his commanding officer that he does not desire to be so transferred or attached, and in that case the transfer or attachment is to be annulled without prejudice to the validity of anything which may have been done in the meanwhile.

3. The date from which transfer or attachment takes effect will be fixed by an Order of the Air Council, which will be made with the consent of the Admiralty and Army Council, and will be promulgated in the various commands, theatres of war and countries over seas, where members of the flying services are serving. Transfer or attachment will take effect on the date prescribed in the Order of the Air Council. The period of three months referred to in para. 2 will run from the date prescribed in the Order of the Air Council or, in cases where this Order is not promulgated until after the date prescribed in the Order, from the date of such promulgation.

4. Officers and men will become subject to the Air Force Act from the date of their transfer or attachment to the Air Force.

5. The Act provides that the duration of attachment to the Air Force shall be the period of the present war, or a period not exceeding four years, and that no person transferred shall be liable to serve with the Air Force for any longer period than that for which he would have been liable to serve had he continued in the Force from which he was transferred. Officers and men attached will be kept for whichever period (duration of war or four years) is the longer.

*6. In the case of any person transferred to the Air Force, for the purposes of pay, pensions, gratuity, and retired or half-pay, and of any decoration or reward dependent on length of service, any previous service with His Majesty's naval or military forces which would have counted as service towards pay, pension, gratuity, retired or half-pay, or such decoration or reward if he had not been so transferred, will be deemed to be service with the Air Force towards pay, pension, gratuity, retired or half-pay, or such decoration or reward.

*7. In the case of any person attached to the Air Force, the fact that he is so attached will not affect any right to any pay, pension, gratuity, retired or half-pay, or such decoration or reward as aforesaid, already earned by him in that branch of His Majesty's naval or military forces to which he belonged at the date on which he was so attached, and the period during which he is so attached shall, for the purpose of any provisions relating to pay, pensions, gratuity, retired or half-pay, or such decoration or reward, be deemed to be service with that branch of His Majesty's naval or military forces to which he belonged at the date on which he was so attached.

Conditions Applicable to all Ranks.

7A. Every officer or man serving in the Air Force, will if medically fit, be liable to be called upon to go into the air, either in airships, aeroplanes, or kite balloons.

7B. Every officer or man serving in the Air Force will be liable to be ordered to any station, at home or abroad, if considered medically fit for such service.

General Rules as to Emoluments—All Ranks.

8. While it is impossible to pledge the future as to the prospects of individuals, and while reasonable latitude must be reserved to the Air Council to deal with any privileges or emoluments (such as allowances) which are not subject to vested rights, it may be taken as a governing principle that no officer or man will suffer during the war by reason of

* The position of officers of the Indian Army and of the Indian Army Reserve transferred or attached to the Air Force is being specially considered with reference to the provisions of these two paragraphs. In the meantime this memorandum must not be taken as determining finally anything as to the manner in which officers of the Indian Army will be treated regarding pay, pension, promotion, &c., on transfer or attachment. Officers of the Indian Army and Indian Army Reserve will in due course be informed individually what their position will be on transfer or attachment.

transfer to the Air Force, in respect of the pay and pension of the substantive, temporary or acting rank held by him in the Navy or Army immediately before transfer; an officer or man, however, may be required to relinquish his temporary or acting rank under the existing rules of the Services. Nor will officers or men suffer through any revision of the rates after the war in respect of the pay and pension of the substantive rank held by them on the date of such revision. At the same time it must be borne in mind that certain concessions in regard to emoluments in the Navy and Army have only been authorised for the period of the war, and this limitation must equally apply to such emoluments in the Air Force. Officers and men who are merely lent, as a purely temporary measure, to the Air Force, are not dealt with in this pamphlet.

9. *Scales of Pay.*—The rates of pay of officers and other ranks in the Air Force are set out in Appendices IA, IB, IC, and IIA, IIB, IIC, which also show the corresponding ranks and appointments in the existing Flying Services.

All officers who are transferred or attached to the Air Force will (subject to their not drawing less than their existing rates under para. 8) be paid at the rate of pay appropriate to the appointment in the Air Force to which they are assigned and not necessarily at the rate of pay in the Air Force which their own rank would carry under Appendix IA. They will, of course, draw the rate which their rank would give under that Appendix if and when they take up an appointment to which that rank is appropriate. All officers who are attached to the Air Force for instruction will draw the pay of which they were in receipt at the time of the transfer of their attachment to the Air Force, plus instructional rates of flying pay until they qualify.

10. *General Rule as to Allowances.*—Allowances generally will be at Army rates and under Army regulations. These allowances will be reviewed from time to time as may be necessary, to adapt them to the circumstances of the Air Force. Typical rates are shown in Appendix III, as a general guide. Navy allowances (other than separation allowance) will apply in the case of officers and men while actually borne on the books of His Majesty's ships.

11. *Officers' Children's Allowance.*—This allowance will be issuable during the war at the same rates and under the conditions already authorised. (See Appendix III.)

12. *Separation Allowance. Men.*—Separation allowance will be issuable at Army rates.

Appendix III shows how the allowances in the case of men transferred from the Navy will be adjusted on transfer.

13. *Disability Pensions.*—These are administered by the Ministry of Pensions. The general position is that no officer or man will lose in his present rank on transfer.

14. *Pensions for Length of Service, Half-Pay, &c.*—See para. 7 above. Details of pensions for length of service, of half-pay, &c., have not yet been finally settled, but a general guarantee is given that pension rights for officers on a permanent commission, or men on a regular engagement, transferred or attached to the Air Force, will be at rates not less favourable than those that can be earned in the Navy and Army.

15. *Income Tax.*—Steps have been taken to secure for officers and men of the Air Force Income Tax reliefs similar to those granted under recent Finance Acts to members of the naval and military forces.

These reliefs include reduced rates of tax, exemption where the total income does not exceed £160, an abatement allowance of £160 where the total income does not exceed £300, &c.

16. *Prize Money and Prize Bounty.*—Officer and men of the Royal Navy and R.N.A.S., if entitled, at the date of transfer or attachment to the Air Force, to prize money under the regulations which may be approved for its distribution, will not forfeit their claims by such transfer or attachment.

17. *War Gratuity.*—The position of officers and men of the Army transferred or attached to the Air Force will not, by reason of their transfer or attachment, be altered as regards any claim they might otherwise have had to participate in any war gratuity, the issue of which may hereafter be sanctioned by His Majesty's Government.

Conditions Applicable to all Officers.

18. All officers transferred or attached on the formation of the Air Force will be placed on a gradation list, which will fix their seniority in the Air Force.

In drawing up the gradation list consideration has been given to the permanent, temporary or honorary rank held by each officer.

In the case of officers holding permanent commissions in the Navy or Army, the permanent rank has been the first

basis. Certain promotions have, however, been made in cases where officers have been advanced in temporary rank more than one grade, or have held temporary rank (while holding appointments carrying temporary rank) for a certain period.

In grading temporary officers consideration has been given to their temporary or acting rank, whether gained in the R.N.A.S. or R.F.C. or in other branches of the Services. Unless for exceptional reasons, those who have not held their present temporary rank for more than a certain period are graded in the rank below, and given temporary rank of their present grade.

Owing to the difference between old and new ranks and scales of pay, it has been found that certain officers, if graded in their present permanent or temporary rank, would receive pay of appointments higher than those they now hold, and in which there are at present no vacancies. In these cases they have been graded in the rank corresponding to their present rate of pay and granted honorary rank in the grade they held before the promotion of the Air Force.

In certain cases the Air Council have made special promotions to meet the needs of the Air Force on its formation.

The list has been compiled by the senior officers of the two Services, and each individual case has been considered, although, in view of the fact that all promotions in the Air Force above the rank of Lieutenant, will be by selection, the exact order of seniority in the different ranks is not of so much importance as in the older Services. It is not improbable that there may be errors in the list, and attention should be drawn to these through the usual channels.

19. All officers (other than those under instruction) who are transferred or attached to the Air Force from the Navy or Army, will, in order to give them authority under the Air Force Act, receive temporary commissions in the Air Force for the period for which they are transferred or attached.

20. In the event of the services of an officer attached to the Air Force proving unsuitable, the Air Council may arrange with the Admiralty or Army Council for his return to his original service.

21. A limited number of permanent commissions in the Regular Air Force will be given to such officers (whether transferred or attached) as apply for, and are selected for, permanent transfer).

Conditions Applicable to Special Categories of Officers.

22. Officers of the following categories, viz:—

- Regular officers.—Navy and Royal Marines;
- Officers holding other than temporary commissions in R.N.R. and R.N.V.R.;
- Regular Officers.—Army and Indian Army;
- Officers of the Reserve of Officers;
- Officers of the Special Reserve of Officers (except Special Reserve, R.F.C.);
- Officers of the Territorial Force;
- Officers of the Territorial Force Reserve;
- Officers attached to the R.N.A.S. or R.F.C. under any special order of the Admiralty or Army Council,

who on the date prescribed by the Order in Council (see para. 1) were attached to the R.N.A.S. or R.F.C., will, subject to their rights under Section 3 of the Act (para. 2), be attached to the Air Force.

23. Officers of the above categories who exercise the right to object to attachment (see para. 2) will revert to naval or military service.

- 24. Officers of the following categories, viz.,
- Officers holding temporary commissions in the Royal Marines, R.N.V.R., R.N.R., and R.N.A.S.;
- Temporary officers on the General List of the Army and Indian Army;
- Officers of the Indian Army Reserve;
- Officers of the Special Reserve of the Royal Flying Corps;
- Officers attached to the R.N.A.S. or R.F.C., under any special order of the Admiralty or Army Council,

who on the date prescribed by the Order in Council (see

para. 1) belonged to or were attached to the R.N.A.S. or R.F.C., will, subject to their rights under Section 3 of the Act, be transferred to the Air Force.

25. Temporary R.N.V.R., R.N.R. and R.N.A.S. officers who have not served with a commission in any branch of the Royal Navy except the R.N.A.S., will, if they refuse to be transferred to the Air Force, have no claim to be accepted by the Admiralty as commissioned officers in another branch of the Navy.

26. An officer of the R.F.C. Special Reserve who refuses to be transferred to the Air Force, will have no military unit to which he can be re-appointed, and will have no claim on the Army Council for appointment to commissioned rank in another branch of the Service.

27. Temporary officers on the General List of the Army who have not served while holding a commission in any branch of the Army except the R.F.C., will, if they refuse to be transferred to the Air Force, have no claim to be accepted by the Army Council as commissioned officers in another branch of the Army.

Conditions Applicable to all Ranks other than Officers.

28. All warrant officers, chief petty officers, petty officers, air mechanics, aircraft men and other ratings who, on the date prescribed by the Order in Council (see para. 1) belong to or are attached to the R.N.A.S., and all warrant officers, non-commissioned officers, men and boys who, on the same date, belong to or are attached to the R.F.C., will be transferred to the Air Force, with effect from the date to be fixed by the Order of the Air Council referred to in para. 3.

Royal Fleet Reserve ratings will be attached only.

29. The rank of those transferred to the Air Force under the preceding paragraph will not be lower than the corresponding rank in the Navy and Army held on the day preceding transfer. These ranks are set out in Appendices IIB and IIC.

This we have summarised as follows, omitting the details regarding pay:—

Present ranks and grading	Rank in new Air Force.
R.N.A.S.—Wing Commander, Wing Observer, Commander R.N.V.R., Fleet Paymaster, Naval Instructor (15 years' seniority) ..	Lieut.-Col.
R.F.C.—Wing Commander (Lieut.-Col.), Depot Commander (Lieut.-Col.) ..	
R.N.A.S.—Squadron Commander, Squadron Observer, Lieut. Commander R.N.V.R., Staff Paymaster, Naval Instructor (8 years' seniority) ..	Major.
R.F.C.—Squadron Commander (Major), Park Commander (Major) ..	
R.N.A.S.—Flight Commander, Flight Observer, Lieut. R.N.V.R., Paymaster, Assistant Paymaster (4 years' seniority), Naval Instructor ..	Captain.
R.F.C.—Flight Commander, Equipment Officer (1st), Wing Adjutant ..	
R.N.A.S.—Flight Lieut., Observer Lieut., Flight Sub-Lieut., Observer Sub-Lieut., W.O. 1st class ..	Lieutenant.
R.F.C.—Flying Officer (2nd Lieut. or Lieutenant), Flying Officer Observer (2nd Lieut. or Lieutenant), Equipment Officer (2nd) (Lieutenant), Acting Adjutant ..	
R.N.A.S.—W.O. 2nd Class ..	2nd Lieut.
R.F.C.—Equipment Officer (3rd) (2nd Lieut.)	
R.N.A.S.—Probationary Flight Officer, Probationary Observer Officer ..	Probationers.
R.F.C.—2nd Lieuts. on probation ..	

The other appendices are as follows: IA pay of officers, IIA pay of men, IIB remustering of the R.N.A.S., IIC remustering of the R.F.C., IID trade classification in Air Force.

Air Force Medical Service.

ACCORDING to the *Lancet*, the Director-General of the Naval Medical Service is chairman of the Medical Administrative Committee mentioned by Major Baird in the recent debate in the House of Commons, and the other members are the Director-General of the Army Medical Service, Fleet Surgeon R. C. Munday (Medical Administrator), Major C. B. Heald (Assistant Medical Administrator) Surgeon-General Rolleston, Dr. Henry Head, Mr. Raymond Johnson, Dr. Leonard Hill, and Sir Walter Fletcher, the secretary of the Medical Research Committee.

The Labour Resettlement Committee.

INCLUDED on what is to be known as the Labour Resettlement Committee, set up by the Minister of Labour to advise him on the problems arising out of the demobilisation of the forces and the discharge of workers owing to the cessation of work connected with the war, are Mr. E. Manville and Sir Herbert Austin, K.B.E. Mr. E. Manville, who is chairman of the Daimler Company, represents the Association of Chambers of Commerce of the United Kingdom, while Sir Herbert Austin of the Austin Motor Company, represents the Federation of British Industries.

THE RECENT AND FUTURE GROWTH OF AERIAL LAW.

By Dr. H. D. HAZELTINE, Reader in English Law in the University of Cambridge.

I.—NATIONAL AND IMPERIAL LAWS.

IN our last issue we were able to give one or two brief points from the first of the interesting Rhodes lectures given by Dr. Hazeltine, at University College. We are now giving a more extended *résumé*, which will, we feel sure, be read with interest.

In his historical introduction Dr. Hazeltine drew attention to the fact that the legal systems of civilised peoples have always embodied rules in regard to the use of the air and the control of the air-space immediately above the surface of the earth. In the course of time there emerged certain principles applicable to the upper as well as to the lower zones of air-space. In Roman law and mediæval jurisprudence these elementary principles of aerial law had already taken definite shape, as, for example, the principle that the land-owner owns *usque ad coelum*. Owing to the Reception of Roman Law, these principles have been embodied in modern legal systems. Until our own times the rules of this older aerial law had been applied in practice only to the lowest zone of air-space, for only in this zone had man's activities been possible. With the recent development of the means of communicating and navigating through air-space, the old principles have acquired new and special importance, for the activities of man now reach to the upper aerial zones. From the historical point of view the striking thing about recent growth is not that the air-space as such is subject to law, but that the entire air-space above the surface of the whole earth has now come, in theory if not yet fully in practice, within the domain of human laws.

The recent growth of aerial law throughout the world has led to the study of its principles, and the literature of the new branch of legal science is already voluminous. Draft codes of national and international law have been formulated, anticipating in many directions the legal needs of the future.

Lawyers are devoting special attention to the study of the history and principles of the aerial laws of their own countries, thus preparing the way for comparative legal studies, which will be most valuable as the demand increases for uniform laws throughout the world in regard to aerial navigation.

Up to the present time public aerial law has been more fully developed than the various branches of private law, such as property, contract, and tort. In the constitutional law of states the most marked feature of growth has been the firm establishment of the principle that each state possesses full and absolute sovereignty in the entire air-space above its territory and territorial waters, unlimited by the right of innocent passage. The furtherance of international aerial navigation will thus depend upon national legislation and international conventions. The war has swept away the old unsound theories of the freedom of territorial air-space based on the false analogy of the freedom of the high seas. It is universally recognised, however, that the air-spaces over the high seas are free to all as are the high seas. These spaces will constitute the world's aerial highways of the future. In constitutional law there has been also the development of governmental institutions for the enforcement of state sovereignty in territorial air-space. Prior to the war there had grown up in several countries bodies of administrative law whereby the state regulated and controlled the use of the air-space for wireless communication and aircraft navigation. After the war these administrative laws will be much more fully developed and in accordance with whatever international conventions may be concluded. There are, too, criminal aerial laws in several countries, which deal with offences committed in the territorial air-space.

The main part of the lecture was devoted to the recent and future growth of the public aerial laws of the various parts of the British Empire. The lecturer considered in some detail the fundamental principle of the imperial constitution that aerial as well as territorial sovereignty is an attribute of the state, drawing attention to the fact that political and legal thought has come to distinguish between the sovereignty of the state and that of the organ or organs exercising the powers of the state. He reached the conclusion that Parliament possesses in theory sovereign legislative power over all the air-spaces of the Empire, although up to the present this power has been exercised in respect only to the air-spaces of the United Kingdom and the British Islands. Other parts of the Empire have established their own aerial laws and ordinances. The leading principle of British constitutional practice is that in each of the political units of the

Empire the legislative, executive and judicial institutions of territorial government exercise also the powers of aerial government. The idea underlying this practice is that all the air-spaces above the Empire are as much a part of the Empire in its physical aspect as are its territories and territorial waters. The air-space is so closely related to the territory that it may be viewed as a vertical extension of the territory itself.

Certain institutions of British executive government have undergone a process of adaptation for the purpose of enforcing aerial sovereignty; besides which there is now a tendency to create new agencies of government. The most striking illustration of this latest phase of constitutional development is the establishment of the Air Council, charged, under the Air Force Constitution Act, 1917, "with the administration of matters relating to the Air Force and to the defence of the realm by air." The recent able speech of Major Baird, Parliamentary Secretary to the Air Council, on the Air Force Estimates, presents a record of constitutional reorganisation and of aerial activity on all fronts of which the United Kingdom and the Empire may well be proud.

The lecturer then examined the provisions of the laws of the Empire in regard to state regulation and control of the use of territorial air-space for purposes of wireless communication and aerial navigation; and he referred also to the international wireless conventions which bind the Empire. The Wireless Telegraph Act, 1904, various statutory rules and orders issued thereunder, and the legislation of the overseas possessions embody certain common principles. Two of these are that no one shall establish a wireless station on land or on a British ship except under Governmental licence and that the licensed station is subject to the control of the competent civil, military or naval authorities.

In dealing with the law of aerial navigation, the lecturer pointed out that the Aerial Navigation Acts, 1911 and 1913, and the legislation in India and many other overseas possessions confer powers upon executive authorities to prohibit or regulate the flight of aircraft within territorial air-space. Acting in accordance with his statutory powers, the Home Secretary had, prior to the beginning of the war, issued various orders in which he prescribed not only the areas in which the navigation of aircraft of all kinds, except British naval and military aircraft, was prohibited, but also the portions of the coast-line prohibited to aircraft from abroad, and the areas within which and the conditions under which such aircraft might land. The conditions imposed upon aircraft from abroad are of particular interest. In the case of airships, as distinct from aeroplanes, the analogy of the maritime ship is followed. Before commencing a voyage to the United Kingdom the person in charge of an airship must apply to a British consular officer for a clearance. The application must contain particulars in regard to various matters, such as the name and registered number of the airship, the name, nationality and place of residence of the owner, of the person in charge and of each member of the crew, the nature of the cargo and the proposed object of the voyage. These and other detailed provisions of the Home Secretary's orders may well serve as precedents for after-war regulation, when the existing prohibition of civilian flight shall have been revoked.

Two main purposes underlie the entire body of enacted law regarding aerial navigation; first, the protection of the public from the dangers incident to aerial navigation, and, secondly, the defence and safety of the realm and of the overseas possessions. In the shaping of future legislation these ends will be held in view.

Another branch of British public aerial law is that dealing with criminal acts committed in the air-space, such as flight over prohibited areas. The penal provisions of the Aerial Navigation Acts and the Ceylon Ordinance of 1912 are of special interest.

In sketching the possible lines of future growth, the lecturer expressed his opinion that state sovereignty in the air-space would form the foundation of the whole structure of national imperial and international aerial laws. We may not expect to see special legislatures established for the making of aerial laws, but we may look forward with assurance to the creation of new institutions of an executive character. The establishment of the Air Force and the Air Council points the way to the organisation of other governmental agencies charged with duties and invested with powers connected in one way or another with the air-spaces of the

Empire and their use for wireless telegraphy and aerial navigation in public and private interests. For many purposes the adaptation of existing institutions will probably suffice. Thus, the aerial post would naturally be administered by the Post Office, which already, under the laws of the United Kingdom, possesses governmental powers over the wireless system. So, too, many matters of commercial aerial navigation will probably be controlled by the Board of Trade. But for such purposes as aerial police and aerial customs new governmental agencies may be evolved in course of time, although even for these purposes we may see only the adaptation of existing agencies. The marking out of aerial routes—provided with aerial ports or aerodromes, lights, beacons, and pilotage—may lead to the establishment of bodies with duties corresponding to those of Trinity House in maritime matters. The development of life-saving appliances for the air (some of which, such as the parachute, have already undergone successful experiments) will lead to governmental control. It is possible that the Board of Trade may be invested with power to issue regulations for aerial life-saving apparatus exactly as they have already done for life-saving equipment at sea. It is also possible that in course of time new Air Courts, on the analogy of Admiralty Courts, may be evolved to deal with cases under the ever-increasing mass of law, in regard to overseas commercial aerial navigation. In this event, the expert aerial navigators of the Trinity House of the Air might serve as assessors, on the analogy of Trinity Masters in Admiralty Courts. But the close connection between the sea and the air-space over it may result in Admiralty jurisdiction in this vast air-space.

Aerial administrative law will be far more important in the future than it has been hitherto. As wireless stations and aircraft increase in number after the war, legal regulations will be more and more necessary. Some of these regulations will be local in character, and will apply only to the separate air-spaces of the various parts of the Empire—the United Kingdom, the colonies, dependencies, and protectorates. This is the system already in force. But certain fundamental principles of legal regulation might well be embodied in an Imperial Act applying to the entire Empire, on the analogy of the Merchant Shipping Act.

Dr. Hazeltine drew attention to two or three special problems in administrative law. The distinction between public and private wireless stations and aircraft is already a fundamental feature of the aerial laws of the Empire; but in the future this distinction will be even more important, not only in municipal but also in international law. It will be necessary to have a legal criterion of the public character of aircraft, which might, the lecturer thought, depend upon the presence of two conditions: (1) that the aircraft be engaged in the service of His Majesty's Government; (2) that it be at the same time under the control of an officer of one of the three armed forces of the Crown, the Army, Navy, or Air Force, or of some other official duly commissioned by the Government. Under this definition there would be military and non-military public aircraft. Under the latter category would fall aircraft engaged in police, revenue, postal, pilotage, life-saving, and other services of the state. Even aircraft owned by private individuals or companies would be public aircraft if engaged in public service under the control of an officer of one of the armed forces of the Crown or of some duly commissioned official of the Crown Government.

There is general agreement among jurists that, for the purpose of international aerial navigation, aircraft ought to be

invested with nationality, on the analogy of the nationality of seacraft. All British public aircraft will of course be possessed of British nationality. In the case of private aircraft one possible solution would be to follow the principles of the Merchant Shipping Act, and to make British nationality of aircraft depend upon ownership by British subjects or by bodies corporate established under and subject to the laws of some part of His Majesty's dominions. Inasmuch as nationality implies the right to fly the British flag and to receive consular and other governmental assistance and protection, some safe principle, such as that of the British shipping laws, will be necessary after the war.

Dr. Hazeltine drew attention to the fact that the problem as to registration of private aircraft is distinct and different from that of nationality. The primary purpose of a system of registration should be the proper regulation of aerial navigation in British air-spaces, with a view to the safety of the public, and of the persons and goods carried by aircraft, and the safety and defence of the realm and of the overseas possessions. To effect this purpose all private aircraft should be registered at official state registers. An aerial Lloyd's might well be established. Registration will not confer British nationality, but it will simply license to navigate in British air-spaces. All private aircraft, British and foreign, should therefore be required to register before being allowed to navigate. Before granting a licence of navigation the official registrar should satisfy himself that the pilot and crew are competent and that the aircraft itself is airworthy or fit for navigation. Every aircraft entered on the register should be provided with a number and other marks of identification, and the pilot or other responsible person should be in possession of the official licence containing all necessary information, such as the place of registration, the names and addresses of the pilot and crew, and the tonnage of the aircraft. Registration will render the aircraft, whether of British or foreign nationality, amenable to British law within British air-spaces, including all legal regulations in regard to aerial navigation such as frontiers, prohibited areas, prescribed landing places, lights, pilotage and life-saving appliances.

The speaker drew attention to the fact that the principle of licensing wireless stations is already a part of British laws. The same principle ought to be applied to aircraft. The licence, as in the case of wireless, should be revocable on due cause or in case of emergency. The principle of the revocable licence to navigate is far safer, from the point of view of public safety and national and imperial interests, than that of the right of innocent passage. The adoption of the principle of the revocable licence would be quite as favourable to legitimate aerial navigation by British and foreign aircraft alike as the concession of the dangerous principle, by international agreement, of the right of innocent passage. The great advantage of the licence is that it is revocable, for due and sufficient cause or in times of national or imperial emergency, by the state.

The lecturer also considered problems in the future growth of criminal and private aerial law. He thought that the existing maritime and commercial laws of the Empire could be applied in many directions to carriage of persons and goods by aircraft.

In concluding his lecture, Dr. Hazeltine expressed the view that in the future aerial communications will share with sea communications in binding the scattered parts of the Empire together. He appealed for a closer study of aerial legal problems on the part of the lawyers and statesmen of the Empire.



The Aeronautical Society's Educational Lectures.

STUDENTS and others are reminded that the series of ten educational lectures arranged by the Aeronautical Society are now being given at six different centres, in London, Leeds, Lincoln, Coventry, Norwich and Peterborough. The lecturers are Capt. F. M. Green (History and Development of the Aeroplane), Mr. E. F. Relf (The Aerofoil and Fluid Flow Round Bodies, &c.), Mr. A. Fage (The Airscrew), Mr. F. H. Bramwell (The Modern Aeroplane), Mr. J. D. North (Materials and Methods of Design and Construction of Aeroplanes), Commander W. Lockwood Marsh, R.N.V.R. (History and Development of Balloons and Airships), Wing-Commander J. N. Fletcher, R.N.A.S. (Constructional Methods, Airships and Balloons), Capt. Aston, R.F.C. (Stability and Control), Capt. J. S. Irving, R.F.C. (Aero Engines), Professor W. G. Duffield (Meteorology and Navigation). Anyone interested can obtain a ticket giving full particulars, dates, place of meeting, &c., from the Secretary, Aeronautical Society, 7, Albemarle Street, W. 1.

Honours for Garros and Marechal

Soon after their arrival in France after their escape from Germany, Lieuts. Garros and Marechal were received by President Poincaré. They have since been made respectively Officer and Chevalier of the Legion of Honour.

Another French Pilot Escapes from Germany.

L'Eclair has received information from Holland that one of the best French bombing pilots, Lieutenant Mezergues, has escaped from Germany.

Patrol Work of French Aircraft.

FRENCH airships and seaplanes, which in December recorded 3,000 hours of patrol work, achieved a record of 4,500 hours during January. There were several cases of successful attacks by aircraft on enemy submarines.

Successful French Airmen.

Le Petit Journal announces that Flight Sub-Lieutenant Madon has brought down his 24th enemy aeroplane, Warrant Officer Douchy his ninth, Warrant Officer Garraud his eighth, and Captain Derode his seventh.



Casualties.

Lieutenant ALLAN COLEY, R.F.C., who was killed on active service on March 6th, was 19 years of age, and eldest son of the late Harry C. Coley, of Bishops Stortford, and of Mrs. E. R. Holland, of Surbiton. He had his commission in the Army in August, 1916, and was given his wings in April of last year.

Lieutenant THOMAS McKENNY HUGHES, King's Royal Rifle Corps, attached R.F.C., who was killed in action on February 6th, whilst flying abroad, was the son of the late Professor Hughes, F.R.S., of Cambridge University.

Lieutenant F. H. KANN, R.F.C., who was previously reported missing on October 21st, 1917, and now reported killed, aged 21, was the eldest son of Mr. and Mrs. René Kann, 37, Lancaster Gate.

Lieutenant JOHN HERBERT MORRIS, R.H.A., attached R.F.C., who was killed on March 6th, aged 19, was the younger son of Captain and Mrs. Alfred Morris, late of Langton, Blandford, Dorset.

Lieutenant JAMES HILL YOUNG, London Regiment and R.F.C., who died on January 17th in Germany while a prisoner of war, of wounds received on January 12th, was the son of James Young, Columville, Bromley, Kent. He was 30 years of age.

Lieutenant THOMAS SYDNEY OUGH DEALY, A.F.C., who was accidentally killed on March 7th, aged 21, was the younger son of Mr. and Mrs. Thomas Kirkman Dealy, of Hong Kong and Brougham Place, Adelaide.

Captain ALEXANDER BRUCE KYNQCH, R.F.C., who was killed in England as the result of an aeroplane accident on March 8th, aged 25, had seen service in Egypt, the Dardanelles, where he was wounded, and Macedonia. He originally served with the Duke of Wellington's Regiment, but later transferred to the R.F.C., and in October came to England to learn to fly. Within six weeks he had graduated, and he showed promise of becoming a skilled and efficient pilot.

TERENCE WOOD MANLEY, R.F.C., who died on March 6th in Kent, as the result of an accident, was the only surviving son of Herbert Manley, M.D., barrister-at-law, of West Bromwich Staffordshire.

Captain STUART CHRISTIAN TINNE, Royal West Kent Regiment and R.F.C., son of the late Theodore F. S. Tinne and Mrs. Tinne, of The Chine, Wrecclesham, Farnham, whose death was mentioned last week, was born in 1895, and educated at Mr. Churchill's, Broadstairs, and Wellington College. He entered Sandhurst in February, 1913, received a commission in the Royal West Kent Regiment in August, 1914, and went to the Front in the following month, but was wounded and incapacitated at the end of that year. After long hospital treatment, and being disabled for the infantry, he joined the R.F.C. in March, 1916, and went to the Front in the following October. He was promoted Captain in the Royal West Kent Regiment in March, 1917, and remained seconded to the R.F.C. In April of last year he was attached to the photography section, and was engaged on this work up to the time of his death.

Married.

The marriage took place in London on March 7th of Captain GERALD ALLEN, the Connaught Rangers (Major, R.F.C.), son of Mr. Robert Allen, of Coolgreina, Rushbrook, Co. Cork, and MINA, only daughter of Brigadier-General Sir Owen and Lady THOMAS, of Cemaes, Anglesey.

The marriage took place on March 5th, at St. Andrew's Church, Kingswood, of Captain L. C. COATES, R.F.C., second son of Mr. and Mrs. David Coates, of West Dulwich, and Miss KATHLEEN V. RANK, youngest daughter of Mr. Joseph Rank, and the late Mrs. Rank, of Kingswood Warren, Surrey.

On March 7th, at Richmond, Mr. D. J. DEWAR-MURRAY, attached R.F.C., was married to Mrs. R. WARREN-VERNON, of Toddington Manor, Beds.

On March 9th Captain and Adjutant WALTER L. DINGLEY, Cheshire Regiment and R.F.C., son of Mr. and Mrs. Alfred Dingley, of Welford, near Stratford-on-Avon, was married to NORAH CATHERINE BRASH, daughter of the late G. Brash Wheeler, of Queen Victoria Street, and Beckenham, Kent, and Mrs. G. Brash Wheeler, of 52, Twyford Avenue, Acton.

On March 6th, at Holy Trinity Church, Darlington, Lieutenant AUBREY WILSON HIGSON, A.S.C., attached R.F.C., youngest son of Jacob Higson, M.I.C.E., Northwood, Middlesex, was married to VERA MARGUERITE, youngest daughter of Walter W. STORR, J.P., F.R.G.S., Uplands, Darlington.

To be Married.

A marriage has been arranged, and will shortly take place, between Lieutenant HUGH TREVOR DAWSON, Royal Navy, only surviving son of Commander Sir Trevor and Lady Dawson, of 2, Green Street, Park Lane, and Edgwarebury House, Elstree, and VERA, only daughter of Sir Frederick and Lady HALLIDAY, of 86, Iverna Court, Kensington.

The engagement is announced between Lieutenant RUPERT DE LA BÈRE, East Surrey Regt., attached R.F.C., son of Mr. and Mrs. De la Bère, of The Croft, Addlestone, and MARGUERITE (PEGGY), eldest daughter of Lieutenant-Colonel Sir John and Lady HUMPHERY, of Walton Leigh, Addlestone.

The marriage arranged between Major L. N. GOULD, M.C., R.G.A. and R.F.C., and Miss BARBARA SPERLING will take place at Holy Trinity Church, Leamington, on April 3rd, at 1.45 p.m.

A marriage has been arranged between Lieutenant GLYN MORISON LEWIS, R.F.C., and of the University College Hospital, second son of the Rev. and Mrs. H. Elvet Lewis, of Highbury New Park, and Miss DOROTHY CHIESMAN, second daughter of Mr. and Mrs. Frederic Chiesman, of West Byfleet.

The engagement is announced between TREMAR MENENDEZ, M.C., Lieutenant, R.F.C., only son of the Hon. F. M. Menendez, Nassau, Bahamas, and MARJORIE, younger daughter of Mr. and Mrs. J. G. PEARD, North Curry, Somerset.

The engagement is announced of Second Lieutenant PATRICK MOXEY, South Wales Borderers and R.F.C., youngest son of Mr. and Mrs. J. E. Moxey, of Framingham Hall, Norwich, and DOROTHY HADDEN, elder daughter of Mr. and Mrs. FRANK H. WHITE, of 25, Palace Gate, W.

The marriage arranged between Lieutenant GEORGE ALGERNON RANDOLPH, Yeomanry, attached R.F.C., and Miss ELIZABETH KATHARINE WALDEGRAVE, will take place quietly at All Saints' Church, Lullington, Somerset, on March 16th, at 2.30.

An engagement is announced between Lieutenant GORDON LLOYD OWEN SHINER, London Regiment, attached R.F.C., son of Mr. and Mrs. Shiner, Avondale, Dartmouth, South Devon, and EDITH CONSTANCE, daughter of Colonel R. H. ADAMSON, North Scottish Royal Garrison Artillery, and Mrs. Adamson, Broomfield, Dundee.

An engagement is announced between DENIS EWART BERNARD KINGSTON SHIPWRIGHT, Second Lieutenant, R.F.C., younger son of the late Thomas Johnson Shipwright, and Mrs. Shipwright (Madame Adelina de Lara), and KATE, daughter of the late Sir Edward HAIN, and Lady Hain, of Trelohan, St. Ives, Cornwall.

A marriage has been arranged, and will very shortly take place, between Captain R. M. WADDINGTON, West Yorks. Regt., attached R.F.C., and Mrs. GEORGE FARMER, widow of Lieutenant G. A. Farmer, King's Royal Rifle Corps.

Items.

An interesting item is to hand. To Mr. SYDNEY PICKLES (late Flight Lieutenant, R.N.A.S.), and Mrs. Pickles a son and heir was born on March 5th.



The British Air Service



UNDER this heading are published each week the official announcements of appointments and promotions affecting the Royal Naval Air Service and the Royal Flying Corps (Military Wing) and Central Flying School. These notices are not duplicated. By way of instance, when an appointment to the Royal Naval Air Service is announced by the Admiralty it is published forthwith, but subsequently, when it appears in the LONDON GAZETTE, it is not repeated in this column.

Royal Flying Corps (Military Wing).

London Gazette Supplement, March 5th.

The following appointments are made:—

Flying Officers.—Temp. 2nd Lieuts. (on prob.), Gen. List, and to be confirmed in their rank:—J. A. Chambers; Aug. 18th, 1917. L. W. Heseltine; Nov. 1st, 1917. W. R. McCluskey; Dec. 31st, 1917. S. Moss; Jan. 19th. R. D. White; Jan. 21st. A. W. Allan, H. O. Thornton, P. C. West; Jan. 22nd. R. C. F. Nailer, E. S. Clark, A. E. Fitness, W. D. Knibbs, R. Moore, E. A. Kinipple; Jan. 23rd. E. D. Jones; Jan. 24th. J. Jukes; Jan. 26th. G. A. E. Norgarh, D. J. M. Miller, C. R. Pithey; Jan. 27th. F. W. Addison; Jan. 28th. R. S. White, W. R. Northridge, J. H. Hewitt, H. B. Good, A. V. Gallie; Jan. 29th. C. H. Roberts; Jan. 30th. M. T. Faurel, F. O. Bales, H. F. W. Robinson; Jan. 31st. E. J. A. L. Kemp, A. de Niverville; Feb. 2nd. H. H. Foster; Feb. 5th.

Equipment Officers, 1st Class.—Lieut. R. E. Reid, S.R., from the 2nd Cl., and to be Temp. Capt. while so employed; Feb. 10th. 2nd Cl.—2nd Lieut. G. T. Bridgewater, S.R., from the 3rd Cl., and to be Temp. Lieut. while so employed; Feb. 10th. 3rd Cl.—2nd Lieuts. (on prob.) Gen. List, and to be confirmed in their rank:—B. G. Bryan, J. Macbeath, H. de S. Hodson, H. C. Blachford, J. R. Charter, W. T. Cosgrove, A. L. Flaws, G. H. Gouinlock, C. T. A. Hart, J. A. H. O'Hynes, W. P. Williams; Dec. 24th, 1917.

General List.—To be Temp. 2nd Lieuts. (on prob.):—Sgt. J. H. M. Woods, from R.W. Kent R. (T.F.); Nov. 30th, 1917. L. Cpl. J. B. Mawer, from Yeo. (T.F.); Dec. 1st, 1917. Pte. R. J. W. Palmer, from R. Fus.; Dec. 7th, 1917. Cdt. to be Temp. 2nd Lieuts. (on prob.):—J. P. Armitage, S. A. Brabner, T. J. Birmingham, H. Bradbury, J. E. Belford, D. A. Cox, F. F. Collins, E. Cooke, E. L. Doncaster, A. E. Durling, T. Dootson, E. G. Emery, A. R. Frankish, A. J. Garton, B. T. Gillman, H. G. Holman, W. A. Hunt, T. L. James, L. P. Kirk, G. E. McManus, W. M. Mullins, P. H. Montgomery, J. S. Muir, I. A. B. MacTavish, G. B. Nicholas, W. H. Newman, H. A. Nash, W. A. Owens, F. J. Ralph, W. Reader, A. W. Robinson, F. C. Taylor, P. P. Thornton, W. Turner, A. H. Watters, H. E. Wiltshire, G. Windle, W. D. Allan, A. E. Hopkins; Feb. 12th. Temp. Sgt.-Major T. R. Barlow, from R.F.C., to be Temp. 2nd Lieut. (on prob.); Feb. 18th.

Memorandum.—Sergt.-Major H. J. Dann from R.F.C. to be 2nd Lieut.; Nov. 16th, 1917.

Supplementary to Regular Corps.—2nd Lieut. S. S. Kaye relinquishes his commission on account of ill-health and is granted the hon. rank of 2nd Lieut.; March 6th. 2nd Lieut. (on prob.) C. S. Bellamy is confirmed in his rank.

London Gazette Supplement, March 6th.

The following appointment is made:—

Flying Officer.—Temp. 2nd Lieut. (on prob.) S. Davison, Gen. List, and to be confirmed in his rank; Nov. 21st, 1917.

Memorandum.—Temp. 2nd Lieut. is transfd. to Gen. List:—J. W. Javes, R.F.C., for duty with Graves Registration Units; Feb. 1st.

Supplementary to Regular Corps.—Lieut. (Temp. Capt.) A. W. Briggs is removed from the Service for absence without leave; Feb. 15th.

General List, R.F.C.—Cdt. Harold Castle Beeby to be Temp. 2nd Lieut.; March 2nd, 1917 (substituted for Gazette notification March 26th, 1917, page 2973, describing name as Harold Castle Beeby).

London Gazette Supplement, March 7th.

The following appointments are made:—

Flying Officers.—Temp. 2nd Lieut. T. P. Keady, R.E.; 2nd Lieut. L. M. Copeland, N. Staff, R. (T.F.), from a Flying Officer (Ob.), seniority March 11th, 1917; Jan. 28th. Lieut. W. A. Scott, Can. Forestry Corps; Jan. 29th. Temp. Lieut. G. G. Robertson, A.S.C., and to be transfd. to R.F.C. Gen. List; Temp. 2nd Lieut. W. Anderson, att'd. Sea. Hghrs., and to be transfd. to R.F.C. Gen. List; Jan. 31st. 2nd Lieut. J. A. Amor, R.G.A., S.R.; Temp. 2nd Lieut. W. Aitken, attached High L.L., and to be transfd. to R.F.C. Gen. List; Feb. 3rd. 2nd Lieut. G. A. Dixon, High L.L., S.R., from a Flying Officer (Ob.); Feb. 6th. (seniority March 30th, 1917); Temp. 2nd Lieuts. (on prob.) Gen. List, and to be confirmed in their rank:—F. Jeffreys; Oct. 13th, 1917. F. J. C. Cunningham; Nov. 26th, 1917. W. B. B. Jeffery, W. A. H. Ellercamp; Feb. 3rd. F. J. Brotheridge; Feb. 8th. N. R. Melville; Feb. 10th.

Equipment Officers, 3rd Class.—Temp. 2nd Lieuts. (on prob.), Gen. List, and to be confirmed in their rank:—R. E. Bottomley, E. H. Brannwell, J. E. Cade, R. D. Chisholm, C. P. Douglas, H. M. Frederick, C. S. Hadley, J. E. C. Hammond, W. St. J. Miller, L. McLaughlin, O. H. Shenstone, J. P. Standlast, G. D. Thomas, H. L. Whitelaw, J. G. Williams; Jan. 7th.

General List.—2nd Cl. Air Mech. W. W. Fyfe, from R.F.C., to be Temp. 2nd Lieut. (on prob.); Jan. 15th.

Supplementary to Regular Corps.—2nd Lieut. (on prob.) R. C. S. Jamie is confirmed in his rank.

London Gazette Supplement, March 8th.

The following appointments are made:—

Flight Commanders.—From Flying Officers:—Jan. 1st: Temp. Capt. W. H. de W. Waller, Gen. List. And to be Temp. Capt. whilst so employed:—Lieut. P. C. Purser, M.C., A.S.C. (T.F.); Temp. Lieut. C. H. Keele, Gen. List (since killed); Lieut. J. T. Morgan, R. Welsh Fus.; Temp. 2nd Lieut. (Temp. Lieut.) D. R. G. Mackay, attached Arg. and South'd. Hghrs., and to be transfd. to R.F.C. Gen. List; Temp. 2nd Lieut. T. Gran, Gen. List; Temp. 2nd Lieut. L. W. Barney, Gen. List; Temp. 2nd Lieut. H. J. Edwards, Gen. List.

Flying Officers.—Temp. 2nd Lieut. S. V. Cowell, Gen. List; Temp. Lieut. A. Chapman, Gen. List, from an Equipment Officer, 3rd Cl.; Jan. 1st, seniority Dec. 31st, 1916 (without pay prior to Jan. 1st). (Nov. 23rd, 1917). From Flying Officers (Ob.):—Lieut. A. S. H. Ryding, Cent. Ont. R., Can. Exped. Force, seniority March 20th, 1917; Lieut. M. A. Benjamin, M.C., S.R., seniority March 9th, 1917; Feb. 3rd. Temp. 2nd Lieuts. (on prob.) Gen. List, and to be confirmed in their rank:—L. A. Hawkins; Sept. 10th, 1917. R. E. Dubber; Jan. 3rd. G. A. Penny, W. M. Phillips, F. J. Kayser; Feb. 3rd. T. W. Williamson; Feb. 9th.

Equipment Officers, 3rd Class.—2nd Lieut. J. Woolfenden, S. Lan. R., S.R., and to be sec'd.; Lieut. J. L. Bicknell, Glouc. R. (T.F.), from a Flying Officer; Temp. 2nd Lieut. T. V. Villiers, Gen. List, from a Flying Officer Temp. 2nd Lieuts. (on prob.), Gen. List, and to be confirmed in their rank:—A. S. Donaldson, P. Giblin; Feb. 5th.

General List.—Temp. 2nd Lieut. H. G. Herbert, M.G. Corps, is transfd.; Nov. 4th, 1917. 1st Cl. Air Mech. S. V. Cowell, from R.F.C., to be Temp. 2nd Lieut.; Oct. 23rd, 1917.

London Gazette Supplement, March 9th.

The following appointments are made:—

Flight Commander.—Lieut. R. Dodds, Cent. Ontario R., from a Flying Officer, and to be Temp. Capt. whilst so employed; Feb. 10th.

Flying Officers.—2nd Lieut. E. H. Hereford, Ind. Army Res. of Off.; Dec. 12th, 1917. Temp. 2nd Lieuts. (on prob.), Gen. List, and to be confirmed in their rank:—C. F. Reeve (since died of wounds); April 18th, 1917. H. G. Dugan,

F. E. McC. Macy; Nov. 4th, 1917. F. H. Reilly; Nov. 22nd, 1917. A. S. Kynock, C. M. Johnson, A. R. Wardle, A. L. Simpson; Jan. 29th. M. Seaholme, G. A. Bloomfield, G. S. Peffers, G. R. Haigh, B. H. Garrett; Jan. 31st. M. Platt, H. J. Youngman, W. T. Warren; Feb. 2nd.

Flying Officers (Observers).—Temp. Lieut. J. G. Proger, Welsh R., and to be transfd. to R.F.C. Gen. List; (Dec. 11th, 1917, seniority from July 17th, 1917; Temp. Lieut. J. M. Carroll, Durh. L.I., with seniority from Aug. 15th, 1917, and to be transfd. to R.F.C. Gen. List; Lieut. H. F. Moore, Manitoba R., Canadian Exped. Force, seniority from Oct. 16th, 1917; Dec. 6th, 1917. With seniority from Oct. 23rd, 1917:—Capt. J. H. Graham, E. Ontario R., Canadian Exped. Force; Lieut. H. G. Ashton, Lond. R. (T.F.), and to be sec'd.; Lieut. J. E. Cole, Quebec R., Canadian Exped. Force; Temp. 2nd Lieut. G. S. L. Hayward, R. W. Kent R., and to be transfd. to R.F.C. Gen. List; Dec. 6th, 1917. Lieut. L. B. Chambers, M.C., York and Lanc. R., S.R.; Dec. 6th, 1917, seniority Nov. 6th, 1917, and to be sec'd.). Temp. 2nd Lieuts. (on prob.), Gen. List, and to be confirmed in their rank:—H. A. Hewitt, seniority Aug. 15th, 1917; S. J. Hunter, seniority Oct. 16th, 1917; Dec. 6th, 1917. G. E. Playford; Dec. 11th, 1917, seniority Oct. 18th, 1917. S. S. Wright; Dec. 11th, 1917, seniority Nov. 4th, 1917.

Equipment Officers, 3rd Class.—Temp. Lieut. S. Blore, York. R., and to be transfd. to R.F.C. Gen. List; Temp. Lieut. W. Allen, Lab. Corps, and to be transfd. to R.F.C. Gen. List; Lieut. M. J. Alliston, Lond. R. (T.F.); Temp. Lieut. T. B. Jones, Ches. R., and to be transfd. to R.F.C. Gen. List; Temp. 2nd Lieut. C. L. Sharrman, attached E. Surr. R., and to be transfd. to R.F.C. Gen. List; Feb. 14th. Temp. 2nd Lieuts. (on prob.), Gen. List, and to be confirmed in their rank:—W. F. Arnold, W. Baines, H. W. Baylis, P. J. Beeby, H. V. Bevis, A. P. Woollett, F. T. Russell.

Schools of Instruction.—School of Technical Training.

Company Commander (graded as an Equipment Officer, 2nd Class).—Lieut. H. D. Ashton, Yeo. (T.F.), to be sec'd. and to be Temp. Capt. (without pay or allowances of that rank) while so employed; Feb. 6th.

General List.—Temp. Capt. H. Ansell, Garr. Bn., Essex R., is transfd.; Jan. 16th. Temp. 2nd Lieut. H. S. Kilner relinquishes his commission on account of ill-health; March 10th. Temp. 2nd Lieut. R. Lee-Mitchell resigns his commission to resume his medical studies, and is granted the hon. rank of 2nd Lieut.; March 10th. The notification in Gazette of Sept. 25th, 1917, regarding Temp. 2nd Lieut. H. A. Hudson is cancelled. To be Temp. 2nd Lieuts.:—Cdt. G. Betts (late Spr.), from R.E.; Oct. 18th, 1917. Pte. G. F. Warner, from A.S.C. Oct. 25th, 1917. To be Temp. 2nd Lieuts. (on prob.):—E. G. P. Hopkins, C. R. Holmes, M. H. B. Heigham, E. B. Kent, J. C. Mungovan, C. H. Mackinnon, W. M. Russell, S. C. Rose; Dec. 31st, 1917. E. Bryant, N. B. Capes, C. F. Kempton, G. V. Vantausk; Jan. 7th. Cpl. E. B. Flanagan, from R. Defence Corps, 3rd Cl. Air Mech. F. E. B. Lord Napier and Ettrick, from R.F.C.; Feb. 5th.

London Gazette Supplement, March 11th.

The following appointments are made:—

Special Appointments (graded as Staff Captains whilst employed as Squadron Commanders).—Capt. W. R. Hoare, Hamps. R. (T.F.), and to be sec'd.; Temp. Capt. H. W. R. Haselhurst, att'd. North'd. Fus., and to be transfd. to R.F.C., Gen. List; Oct. 8th, 1917.

Flight Commanders.—From Flying Officers, and to be Temp. Capt. whilst so employed:—Lieut. E. T. Owles, M.C., R. Ir. Fus., S.R.; Lieut. A. Mann, M.C., A.S.C. (T.F.); Dec. 5th, 1917.

Flying Officers.—2nd Lieut. R. G. Lewis, S. Wales Bord.; Dec. 15th, 1917. Temp. Capt. L. V. A. Royle, M.C., Gen. List; Feb. 3rd.

Flying Officer (Observer).—The regiment of 2nd Lieut. J. V. Hoskins, R. Welsh Fus. (T.F.), is as now described, and not as in the Gazette of July 4th, 1917.

Assistant Instructors in Gunnery (graded as Equipment Officers, 3rd Class).—Capt. R. J. Wallace, R. Scots (T.F.), and to be sec'd.; Capt. E. F. Ambler, Lond. R. (T.F.), from a Flying Officer; Lieut. T. Parker, North'n. R., S.R., from M.G. Corps; Temp. Lieut. S. D. Pegram, M.G. Corps, and to be transfd. to R.F.C., Gen. List; Temp. Lieut. H. B. Hurst, Gen. List, from a Flying Officer; Lieut. R. G. Morrison, Hrs., and to be sec'd.; Lieut. A. R. Mutter, Wilts. R. (T.F.), and to be sec'd.; Lieut. E. W. Hallam, Yeo. (T.F.), from a Flying Officer; 2nd Lieut. (Temp. Lieut.) V. Hermann, R.F.A., S.R., from a Flying Officer (Ob.); Temp. 2nd Lieut. W. R. Munro, Gen. List, from a Flying Officer; Temp. 2nd Lieut. R. E. Towler, Gen. List, from a Flying Officer; Feb. 14th. Temp. 2nd Lieuts. (on prob.), Gen. List, and to be confirmed in their rank: G. Hamersley, G. L. Chesterton, A. H. Knight.

Balloon Officers.—Temp. Lieut. D. M. Denning, R.A., and to be transferred to R.F.C., Gen. List; Jan. 1st. Temp. 2nd Lieut. G. Norrington, R.A., and to be transfd. to R.F.C. Gen. List; Temp. 2nd Lieut. W. Hill, R.W. Kent R., and to be transfd. to R.F.C., Gen. List; 2nd Lieut. C. G. L. Robertson, R.F.A., S.R.; Jan. 15th. Temp. 2nd Lieuts. (on prob.), Gen. List, and to be confirmed in their rank:—D. L. N. Eskell; Jan. 15th. G. Shaw, C. R. Ball, T. L. Coates; Feb. 1st.

Special Appointment (graded as a Park Commander).—Capt. A. A. Nathan, Yeo. (T.F.), from an Instr. (graded as an Equipment Officer, 1st Cl.) at a School of Mil. Aeronautics, and to be Temp. Major whilst so employed; Jan. 15th.

Equipment Officer, 2nd Class.—Temp. Lieut. W. B. South, Gen. List, from 3rd Cl.; Feb. 11th.

Schools of Instruction.—School of Technical Training.

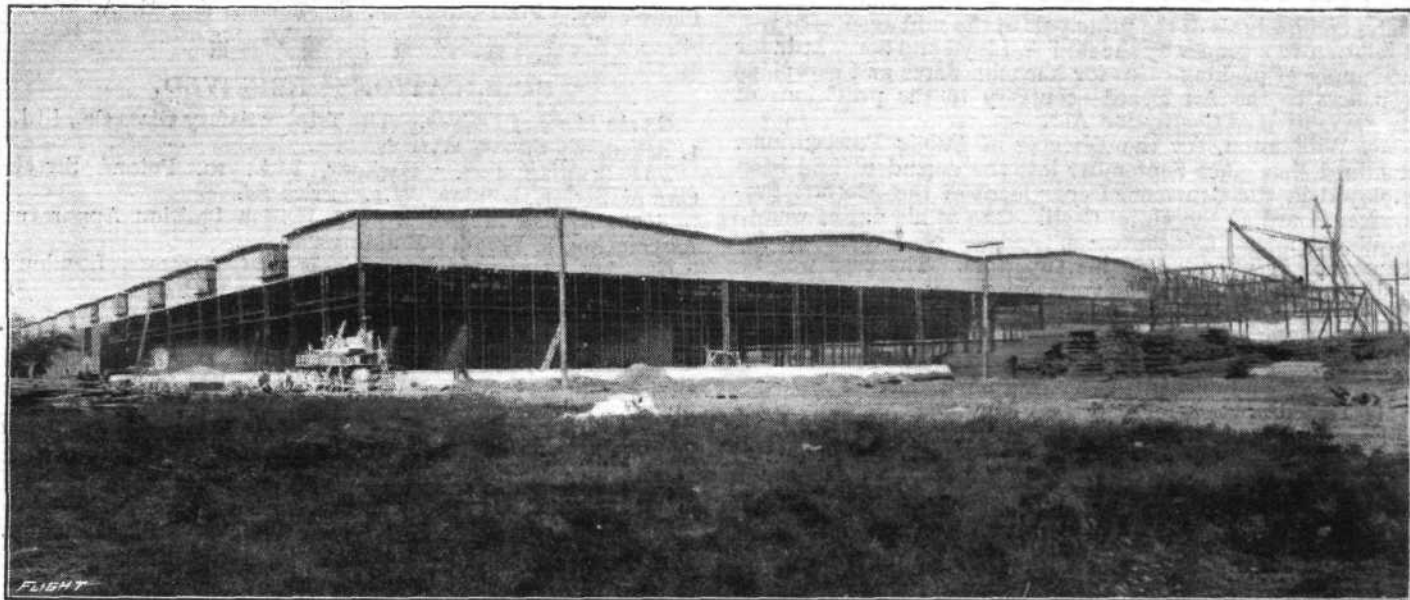
Company Commanders (graded as Equipment Officers, 2nd Class).—Lieut. F. B. Bayly, A. Cyclist Corps, to be sec'd., and to be Temp. Capt. (without the pay or allowances of that rank) while so employed; Feb. 13th. The initials of Lieut. E. G. Etheridge, Suff. R. (T.F.), are as now described and not as in the Gazette of Jan. 15th.

General List.—L. V. A. Royle to be Temp. Capt.; Feb. 3rd. Temp. 2nd Lieut. A. de Niverville to be Temp. Lieut.; Feb. 2nd. Temp. 2nd Lieut. A. R. Yates resigns his commission; March 12th. To be Temp. 2nd Lieuts. (on prob.):—A. A. Adams, F. C. Annesley, G. F. Atkinson, I. C. Bannister, Q. W. Bannister, C. J. Bayly, S. McB. Black, L. H. Booth, J. R. Bozeman, W. G. Brown, A. B. D. Campbell, J. N. Clark, K. H. Crane, J. M. Dandy, D. McK. Darroch, L. K. Devitt, M. E. De Zee, R. E. Dodds, J. B. Dunlop, J. B. Edington, A. L. Fachnie, E. E. Gane, W. J. Garrity, I. P. Graeb, W. A. Greenwood, W. F. Hay, R. B. Hill, W. F. Hendershott, R. H. Holman, W. A. Hunter, W. J. P. Jenner, W. J. Johnson, P. E. Keeping, G. P. Kells, A. R. Lapp, O. J. Lange, W. F. Leach, G. A. Lomas, W. A. MacRoberts, E. R. McCamon, W. J. McGinn, A. E. McManus, E. C. Matthews, A. Moore, R. D. Molesworth, D. A. O'Leary, C. D. Potter, H. Dennis-Preston, W. S. Rogers, J. B. Rose, R. O. Schallaire, W. G. Stevenson, D. F. Taber, P. D. Taylor, E. Taylor, C. W. Thomas, H. H. Webb, W. F. Williams, H. A. Whittaker, C. A. Vick; Dec. 24th, 1917. Cdt. A. Matthews, from N. Lanc. R.; Feb. 5th. Sgt. G. V. Jennings, from R.F.C., C. J. Langman, Temp. Sgt.-Major A. C. Smith, from R.F.C., W. West; Feb. 18th. A. E. Boyce, Acting Co. Sgt.-Major J. V. Cook, from R.W. Fus., 2nd Cl. Air Mech. A. F. Loveday; Feb. 21st. F. J. Harrington, F. E. Miles, T. Moorcroft, F. G. Simpkins, R. MacK. Colvill, W. L. Pike (late 2nd Lieut. (acting Capt.), Gen. List); March 1st.

SIDE-WINDS.

WHEN Mr. J. A. Whitehead, realising the vital necessity of supremacy in the air, initiated his first efforts, after the start of the war, for the production of aircraft, even he could hardly have visualised the growth to which his remarkable energy would lead. Yet from the smallest start he has continued to progress, step by step, until at last we have him obtaining Treasury sanction for the increase of the capital of Whitehead Aircraft, Ltd., to a round million sterling. No small achievement indeed, and one which must carry with

of bringing over American troops). Several lengthy American freight cars in the foreground serve to convey an impression of the size of the whole. The premises have now been in working order for some time, the machinery has been installed, and miles of whirling belts are conveying the power which should in the long-run assist to turn the scales in our favour. The weight of the steel that was used on the job totalled 5,800 tons, and no less than 7,000,000 board feet of lumber were employed. Nearly three thousand men were at work at a time rushing



AVIATION WAR WORK IN AMERICA.—The S.E. corner of the new Curtiss plant.

it its own reward to this remarkable personality. The formal offering of the increased share capital should be in operation this week, we believe, and from what we hear the required amount is already practically waiting for the job.

AN interesting side-light is thrown on the manner in which America is providing for the aerial fleets (which, it is to be hoped, will assist to administer the *coup de grace* to the Hun before very long) by an account which we have received from the Curtiss Aeroplane and Motor Corporation of their new premises which have recently been constructed. It is only ten years ago that Glen Curtiss's experimental machine, "Red Wing," succeeded in flying 319 feet over the ice at Lake Keuka, near Hammondsport, the machine having been constructed in what was little better than a shed. Now the latest extension to this plant is half as long again as the "colossal" German transatlantic liner "Vaterland" (which, as we see by the papers, is doing us the kindly office

the erection of the premises, and their wages bill for one month alone was over a quarter of a million (pounds sterling, not dollars!). The whole contract was for a sum very little short of a round million pounds. Although details cannot be given as to the products that will be turned out in this plant, it will certainly serve to show that America is going all the way.

A LITTLE development in connection with the Bournemouth School of Aviation is to be noted; in future prospective pupils who are in town will be able to obtain full particulars from the General Aeronautical Co., Ltd., who are now acting as London agents for the school. At the offices of the company, 30, Regent Street, just off Piccadilly Circus, those who are contemplating taking a course of flying instruction will be able to get any information they require concerning this school, which, apart from its excellent equipment, has the advantage of a congenial situation.

The Raids on Paris.

THE raid on Paris on the evening of March 8th appears to have been carried out with considerable forces. A message from Paris speaks of from ten to twelve squadrons following one another, advancing on Paris along the Oise and Marne valleys and the Creil-Paris railway line.

"As soon as the alarm signal had been given a violent barrage was opened from all the posts in the north and north-east, and was kept up uninterruptedly until the alarm was over. About sixty aeroplanes went up for the defence. A number of enemy aeroplanes were driven back before they could reach Paris. Several bombs were dropped on uninhabited land in the suburbs. While the raid was taking place our aircraft at the front bombarded the enemy's base aerodromes, notably Ville aux Bois and Epreux. A Gotha, shot down, has been found in the forest of Compiègne with its four occupants burned to cinders. The raid commenced at 8.45 p.m. and lasted nearly 3½ hours. The casualties are officially reported as: Paris: 7 killed—3 men, 4 women; 26 injured—16 men, 7 women, 3 children. Suburbs: 4 killed—3 men, 1 child; 15 injured—7 men, 7 women, 1 child.

A few bombs fell in the district of Seine-et-Oise, where two people were killed and nine injured.

It is unofficially stated that the machine brought down is of the "Friedrichshafen" type, 80 ft. span, fitted with two 250 h.p. motors. It was camouflaged in black, grey and violet.

The following was officially sent out from Berlin on Mar. 9th:

"As reprisals for the dropped bombs by the enemy on the open towns of Trier, Mannheim, and Pirmasens, on February 19th and 20th, our aeroplanes again attacked Paris with bombs during the night of March 8th-9th with great effect."

The following was issued in Paris on March 11th and 12th: "Enemy aeroplanes raided Paris to-night. The alarm was given at 9.10 p.m.

"According to the first reports, about 60 enemy aeroplanes succeeded in crossing our lines. Thanks to the artillery barrages, which were maintained throughout the entire raid with great intensity, a certain number of machines were unable to reach their objectives. Nevertheless, numerous bombs were thrown on Paris and its suburbs. Several buildings were demolished or set on fire.

"The following casualties are reported:—Paris.—Killed, 29; injured, 50. The Suburbs.—Killed, 5; injured, 29.

"In addition, 66 persons, mostly women and children, were asphyxiated in the crowd during a panic which occurred at the entrance to a refuge in the Metropolitan Railway.

"One of the three Gothas brought down was reduced to ashes by fire, and the pilot and other occupants were burned to death. Most of the crews of the other machines brought down were wounded."

The following is the German story:—

"In retaliation for the enemy aerial attacks on March 9th and 10th on Stuttgart, Esslingen, Unter Türkheim, and Mainz, our airmen last night copiously and successfully bombed Paris."

LEGAL INTELLIGENCE.

Air Board Contracts.

AT Bow Street Police Court on March 7th, before Mr. Garrett, Hugh John Williams, aged 27, a clerk in the employment of the Air Board, was charged on remand that he, being an agent—to wit a person, serving under the Crown as a clerk in the employment of the Air Board—unlawfully and corruptly did attempt to obtain from Frederick James Newman, acting on behalf of Messrs. A. Lloyd and Sons, Ltd., certain gifts of money, amounting to £600, as an inducement and reward for doing and forbearing to do certain acts in relation to the affairs and business of the principals of the said agent—to wit, in relation to a tender by the said A. Lloyd and Sons, Ltd., for the supply of packing cases for Michelin flares and aeroplane propellers to the Air Board—contrary to the provisions of the Prevention of Corruption Act.

Mr. Williamson, for the Director of Public Prosecutions, explained that since September last the defendant had been employed in the Contracts Department of the Aircraft Production Board at the Hotel Cecil. One of his duties was to examine tenders for contracts, and to pass them on for acceptance or rejection to his superiors. The case was regarded by the authorities as very serious.

Evidence in support of the charge was given by Mr. A. E. Lloyd and Mr. Frederick J. Newman, confidential managing clerk to Messrs A. Lloyd, Ltd.

Mr. Garrett adjourned the hearing until March 14th.

Mr Terrell applied for bail, and mentioned that his client had served in the present war in the Irish Guards and been wounded.

Mr. Williamson said he was instructed to oppose bail, and Mr. Garrett refused the application.

A Charge Dismissed.

AT Middlesex Sessions on March 11th Frank Clement Meering, 19, an air pilot, and John Charles Martin, 31, were acquitted of a charge of stealing a quantity of aeroplane articles from the Grahame-White Aviation Company, Ltd.

For the defence, Mr. Holman Gregory, K.C., stated that the case had been brought up without consideration or inquiry. The lad was articled to the company when he was 17 years of age, and now was filling up his time before joining the Army by acting as an instructor. He had invented an aeroplane which, it was believed, would be faster than any yet built. Having difficulty in getting necessary parts he mentioned the fact at the aerodrome, and it was suggested that he should go to Martin and obtain the necessary goods through the company if they were willing to sell.

In the course of evidence, Meering said that the wire strainers which it was alleged that he had stolen he had made himself from wire purchased from the company. He understood that he could purchase from Martin, and had always been ready to pay whenever Martin told him the amount.

Receipts were produced for purchases which had been made from the company. Lieutenant Culver described how he landed at the aerodrome on one occasion with a burst tyre and borrowed a tube from the school. He said that he lived in the same house as the lad, and it was he, and not Meering, who left the tube (which it was alleged had been stolen) in the stable.

Mr. Montagu Sharpe, the chairman, stopped the case. In discharging Meering he said that he was very sorry he had been called upon to undergo that trial at the threshold of an honourable career in which he wished him all success.

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Thanks to Airmen at Verdun.

DURING a special visit to the aviation centres of the Verdun army, M. Dumesnil, French Under-Secretary for Aviation, in addition to expressing to the aviators the pride which the country felt in their exploits, described the efforts which were being made to provide the flying services with still more powerful equipment.

A Tall Story.

FROM Paris comes a story which stretches credulity a little too far. It is stated that victory over the twenty-sixth enemy machine brought down by Sub-Lieutenant Fonck was obtained in unusual circumstances. Owing, it is said, to a special equipment on his machine, Lieutenant Fonck sawed through the fuselage of his adversary, behind the pilot, separating the tail of the machine, which fell.

No wonder the Germans claim to having "hovering" machines. Possibly for a job of this sort they may have telescopic trestles which they extend to earth while they do the sawing. Is it after all a case of "pidgin" translation, and that the wonderful "hoverer," mentioned in "FLIGHT" last week, has got mixed up in the process with "sawing" alias "scaring"—hence the ingenious suggestion of "hovering"?

COMPANY MATTERS.

D. Napier and Son.

THE directors of D. Napier and Son recommend a final payment for the year ended September 30th, 1917, of 1s. 6d. per share, free of income-tax, on the ordinary shares, payable to holders registered 14th inst.

NEW COMPANY REGISTERED.

FLIGHT MOTOR CO., LTD.—Capital £250, in £1 shares. Motor agents, automobile engineers, manufacturers of aeroplanes, &c. First directors: S. Michaels and E. A. Wade.

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PUBLICATIONS RECEIVED.

On the Merit of Triplex. The Triplex Safety Glass Co., Ltd., 1, Albemarle Street, W.1.

The Welding Test. Barimar, Ltd., 10, Poland Street, Oxford Street, London, W.1. Price 6d.

About British Magnelos. The British Ignition Apparatus Association, 8, Bream's Buildings, E.C.4.

Glossary of Aeronautical Words and Phrases. London: Aircraft, 69, Bishopsgate, E.C. 2. Price 1s. net.

Catalogues.

Richmond Furnaces for Aeroplane Construction. The Richmond Gas Stove and Meter Co., Ltd., 132, Queen Victoria Street, London, E.C. 4.

Richmond Furnaces for the Production of Munitions and War Materials. The Richmond Gas Stove and Meter Co., Ltd., 132, Queen Victoria Street, London, E.C. 4.

The Industrial Canteen Book. The Richmond Gas Stove and Meter Co., Ltd., 132, Queen Victoria Street, London, E.C. 4.

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Aeronautical Patents Published.

Applied for in 1916.

The numbers in brackets are those under which the specifications are printed and abridged, &c.

Published March, 14th, 1918.

12,792. B. P. REVENALL. Aircraft. (113,286.)

Applied for in 1917.

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Published March 14th, 1918.

489. H. G. L. YOUNG AND WHITEHEAD AIRCRAFT, LTD. Spokeshave. (113,292.)

675. S. E. SAUNDERS, LTD., AND H. H. THOMAS. Aeroplane framing, planes, &c. (113,295.)

4,385. D. G. HAMILTON. Cramps for manufacture of laminated propellers. (113,354.)

4,892. P. M. STAUNTON. Propellers. (113,359.)

6,068. A. W. TURNER AND W. F. LUFF. Aircraft. (113,371.)

If you require anything pertaining to aviation, study "FLIGHT's" Buyers' Guide and Trade Directory, which appears in our advertisement pages each week (see pages lii, liii and liv).

FLIGHT

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